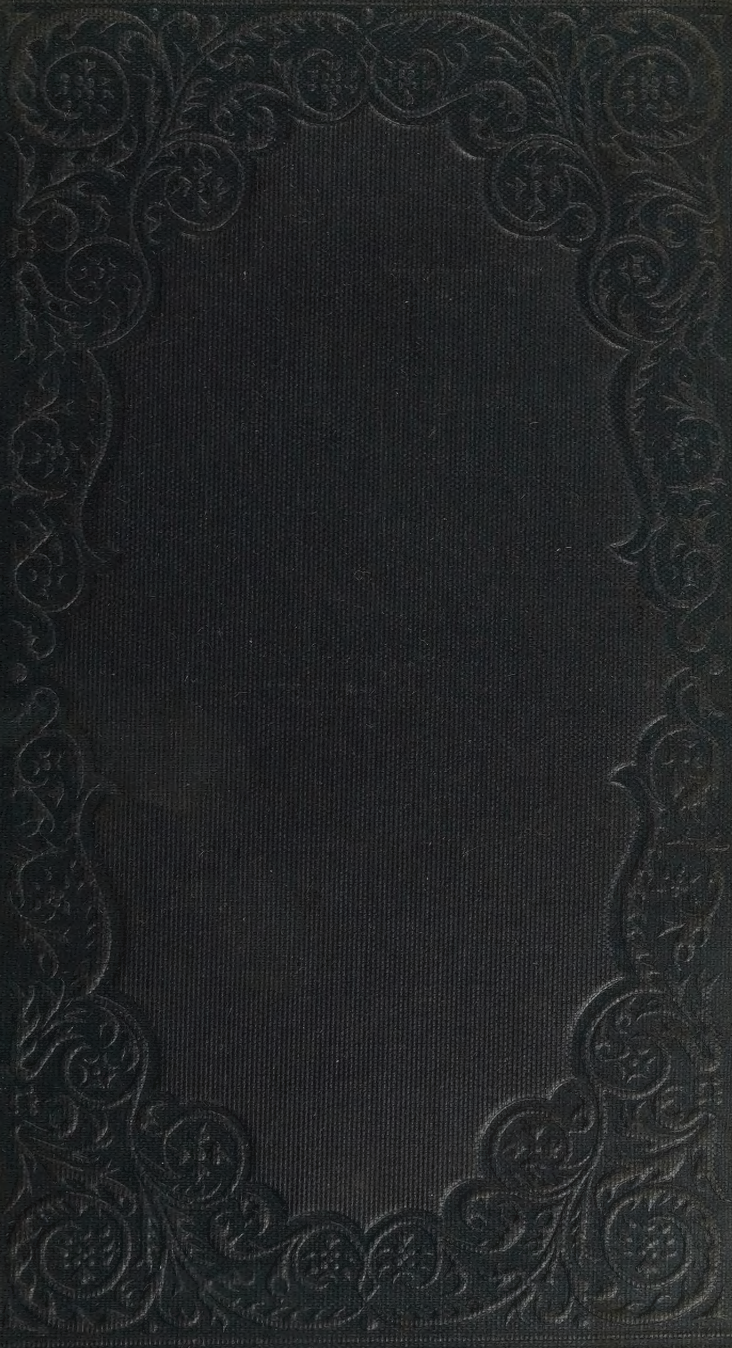

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BRAITHWAITE'S RETROSPECT.

VOL. XC. JULY—DECEMBER, 1884.

THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

EDITED BY
W. BRAITHWAITE, M.D.
LATE LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN AT THE LEEDS SCHOOL OF MEDICINE, ETC.

AND

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VOL. XC. JULY—DECEMBER 1884.

LONDON:
SIMPKIN, MARSHALL, AND CO.
EDINBURGH: OLIVER AND BOYD. DUBLIN: HODGES, FIGGIS AND CO.
AND FANNIN AND CO.

MDCCCLXXXV.

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Parcels of Books, &c. to

Messrs. Simpkin, Marshall, & Co., London.

PRINTED FOR D. I. ROEBUCK,
AT THE OFFICE OF THE YORKSHIRE POST, ALBION STREET, LEEDS.

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SYNOPSIS.

AN ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME, WITH OTHER SHORT ARTICLES FROM THE MEDICAL JOURNALS, SHOWING THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS DURING THE HALF-YEAR. ARRANGED ALPHABETICALLY.

AFFECTIONS OF THE SYSTEM GENERALLY.

ANTIPYRIN: THE NEWEST ANTIPYRETIC.—The search for a substitute for quinine, although not successful in the main object thus far, has been fruitful in the discovery of new remedies. Amongst these may be mentioned, resorcin, quinoline, pyro-catechin, hydroquinone, and kairin. All of these are synthetical products. The last mentioned of this group, kairin, has proved remarkably effective as an antipyretic. This partial success has greatly stimulated the productive activity of chemists engaged in these researches, and their efforts have been rewarded by the discovery of antipyrin. This very appropriate designation is applied to an artificial alkaloid produced synthetically by Dr. L. Knorr, of Erlangen, by the action of acetic ether on aniline. It is also obtained by oxidation from quinoline or chinoline, one of the antiseptics mentioned above. Antipyrin occurs in the form of a white crystalline powder, having a slight aromatic odour, and a somewhat bitter taste, which may be effectively disguised by solution in some medicated water or in wine. It is readily soluble in water, in the proportion of one to three. The dose for an adult as an antipyretic is from 15 to 30 grains, given at intervals of an hour, until 75 or 90 grains have been taken. This quantity can be administered without causing inconvenience except, in rare instances, vomiting. Antipyrin in febrile affections, may be employed by the hypodermatic method. Its ready solubility, and the absence of any resulting important local injury, render it especially available for this mode of administration. We lay before our readers, a succinct account of the action and uses of a remedy which appears to be, from the present state of opinion, the nearest approximation to a substitute for quinine hitherto discovered. The effect for which it has thus far been employed is the antipyretic, and in various acute and chronic febrile affections. The influence on the temperature of fever has been constant, although not to the same degree in all individuals. The maximum depression of temperature is attained in from three to five hours after the commencement of the treatment. The effect is maintained for from seven to nine hours, and in some instances is prolonged to twenty hours. The pulse decreases in frequency as the temperature declines, but the two functions do not maintain an absolute ratio, and the respiration is not affected. Children and weak adults are more readily influenced by it, and therefore require less of the medicament to produce a given result. Antipyrin is an antipyretic of the first importance in all the acute febrile affections; by subcutaneous injection the effects are produced more decidedly and more promptly than by the stomachal administration, and a less quantity of the remedy suffices, thirty grains being equal in power to twice that quantity given by the mouth; a concentrated solution, 15 grains in 8 minims of water, can be employed by the hypodermatic method, without any local injury or accident, and about twice the quantity of antipyrin produces the effects of a given quantity of quinine, for which it appears to be an efficient substitute. Thus far we have had no observations on the use of the new remedy in malarial fevers, which will be the *experimentum crucis*, as regards its curative powers. It has been patented, and is consequently a monopoly in the hands of the holder. (Editor of Philadelphia Med. News, Aug. 2, p. 128.)

ATMOSPHERIC DISINFECTION.—*The Sanitas Disinfecting Fumigator.*—In your journal of April 12th, there is an article by Dr. Robert Lee upon the subject of atmospheric disinfection, the main point in which article relates to the importance of volatilising, into the atmosphere of an apartment requiring disinfection, the disinfectant itself, and not the products of its decomposition by heat. Permit me to call attention to a matter which is not noticed by Dr. Lee—viz., that the Disinfecting Fumigator, which I have designed for the "Sanitas" Company, well fulfils this necessity. In the case of our appliance, it is merely necessary to boil water in a suitable vessel, either by means of a gas-flame or otherwise, placing upon the surface of the water a quantity of "sanitas" oil, the vapour of which is generated in mixture with the aqueous vapour, and thus comes into contact with every material object in the apartment requiring to be disinfected. Sanitas oil boils at a temperature very much higher than that of the boiling-point of water; notwithstanding this, it admits of ready volatilisation when treated in the way described; and the vapour so generated is that of the undecomposed oil; so that it is thoroughly competent to act both as an antiseptic and an oxidising agent. In brief, I claim for the appliance that it enables an operator to carry out atmospheric disinfection in an absolutely perfect manner. In the antiseptic treatment of throat and lung complaints, the sanitas fumigator is very useful, and a night-light may be employed to slowly generate the vapour of the oil, instead of using a gas-flame or a fire. Operating in this way, the fumigator may be kept going day and night constantly. (Mr. C. T. Kingzett, British Medical Journal, May 3, p. 884.)

CANCER.—*Removal of Cancerous Masses by the Elastic Ligature.*—I will mention a simple method which I have found useful for removing cancerous masses; it is only intended for temporary relief, but it gives very little pain and produces much subsequent comfort. It consists in the application of a thin strip of India-rubber around the base of the growth. This thin rubber band having been stretched three or four times around the base, but not so tightly as to cut through, the ends are tied with silk when at full tension as closely as possible to the tumour, and gradual progressive contraction takes place. Where this has been done, considerable sloughing of the cancerous mass has taken place below the site of the ligature, so that a much greater amount of the disease is removed than was included within it. It checks hemorrhage, relieves pain, adds greatly to the comfort, and somewhat to the life, of the sufferer. Such is the constricting power of the rubber, that in one case where the enclosed mass was larger than a big lemon, and had penetrated by deep seated ulceration hopelessly beyond the reach of any surgical measure, the whole included mass was cut through in five days, with several layers of cartilage, which were as cleanly divided as though they had been cut with a knife. The patient, a strong middle aged man, was blanched with loss of blood when this mass was first ligatured, for at each daily dressing nearly a couple of ounces of blood was lost before I saw the case. The mass was tied without the aid of an anæsthetic, and immediately afterwards a subcutaneous injection of morphia was given. In three minutes sleep commenced, and continued for seven hours, at the expiration of which time he awoke free from pain, and remained for eight weeks in great comfort, and entirely without bleeding. The parts were daily cleansed, and then dressed with a thick covering of equal parts of powdered conium and tannic acid. The growth then began to grow rapidly, and bleed freely, and the process was repeated with precisely the same results; but deeper seated growths afterwards developed, which could not be attacked, and the person died, five months after the application of the first ligature and two months after the second. (Mr. Samuel Knaggs, Surgeon to the Huddersfield Infirmary, British Medical Journal, July 12, p. 60.)

CHOLERA.—*Prevention.*—Asiatic cholera, as known to us in England, is essentially an infective disease, spreading chiefly through the water. This was first proved by Snow, and again demonstrated in the following English epidemics by Simon and Farr, and in relation to the last epidemic in London by Netten Radcliffe and Ernest Hart, who jointly traced it to the East London water. Koch's researches only elucidate and confirm this fact. The first and essential precaution is, therefore, to drink only pure water from pure sources, or, failing this, to boil all suspected water and destroy the poison of its contained nastiness. Pump-water, well-water, and river-water, should alike be regarded with suspicion unless their sources be known to be pure, and the water he uncontaminated in passing from the source to the consumer. Pumps and surface-wells are especially open to the gravest objection. It follows that cisterns, water-pipes, and the water-appliances of houses, should be over-hauled by an expert, unless they be known to be safe and clean without reproach. Next, all sources of putrefaction, dust-bins, drains, and sewers, must be regarded as capable of becoming centres and avenues of infection, and should, therefore, be put into perfect order and kept clean. Unripe or over-ripe fruit, and stale vegetable and animal food, should be eschewed. Rigid personal cleanliness, regular habits, abstinence from any but very moderate use of alcohol, avoidance as far as possible of excessive heat and fatigue, are all important aids in maintaining the health and averting the tendency to diarrhœa which favours reception of the choleraic infection. Our greatly improved water-supply, our system of sanitary inspection, and our better understanding of the physical conditions of health in habitations and in the individual, are so many safeguards against cholera. (Editor of British Medical Journal, July 5, p. 28.)

Cholera Epidemics in India.—Treatment.—I think it would be useful to give a short account of how cholera epidemics are treated in India, where absence of epidemic attacks is the exception to the rule in ordinary years. The earlier the disease is diagnosed, the simpler and milder are the remedies required to assist nature to conquer it. The medicine recommended, and generally used in India, is a mild carminative pill, (a compound of one part opium, two parts assafœtida, and three parts of black pepper, made into five grain pills), which if taken needlessly will do no harm, but which if taken early has checked the disease in tens of thousands of cases. If the cholera pills are not given till collapse has supervened they are powerless as well as the strongest stimuli. I do not consider the chemical ingredients of these pills as antidotes to the poison; but they are stimulants to the stomach, whilst its sensibility, though *impaired* by the presence of the poison, is not *paralysed* as it is in collapse. The benefit of the medicine is in promoting the action of the stomach, in the secretion of the gastric juice, which is known to be the most powerful agent in destroying all the microbes, or lower vitalities, which accompany or produce putrefaction or fermentation. The stomach and intestines appear to be the primary seat of the germ, and should this view be correct it would explain the extinction of the disease in the earlier stages by the increased flow of the gastric juice caused by the carminative action of the medicine. The practice to which I allude is the general distribution over the infected country of the carminative cholera pill referred to. It is distributed through the police, with instructions for its use, and an earnest command for its early application. The success of these measures is reported by all the civil authorities as most satisfactory, while any want of success is equally attributed to delay in its use, till the disease had advanced to the stage of collapse. With regard to the prophylactic treatment, the measures employed are directed to restrain the dissemination or spread of the disease from the sick to the healthy, by the isolation of the affected, and by the removal of causes, which experience has proved to facilitate its development, such as non-sanitary crowding, impure air or water, &c., &c. I have no doubt that the disease is communicable; but the channels by and through which it is communicated are often doubtful. Our experience in India shows that personal contact is not the ordinary channel; as proved by the relative exemption of hospital attendants, and more clearly by the great proportion of villages attacked in severe epidemics in which only one death is recorded, or when only two appear; as in many instances these were two affected pilgrims or visitors. (Surg.-General John Murray, Medical Times, Aug. 23, p. 250.)

Bleeding in Cholera.—I saw one remarkable recovery after bleeding. One night, during the height of the epidemic in 1862, at Allahabad, two patients were brought to the hospital, as bad almost as they could be. It was before I saw the permanganate treatment. I tried the salt treatment, gave them champagne, put on sinapisms, &c. They rejected everything given by the mouth. I had heard of three cases in gaol of natives who had been treated by venesection and recovered. I opened a vein in the arm of the worst case of the two men, but could only squeeze out a few drops of black blood, like tar. I then opened a vein in the other arm with the same result; the man would not bleed. I left him and was attending to the other case, when some one came to me to say the man was bleeding profusely. I bound up his arms pretty quickly; reaction returned; he turned over on his side and went to sleep, and never had an unfavourable symptom afterwards. As he had other treatment, I will not say positively it was the bleeding that saved him, but, humanly speaking, I believe it was. I tried it in two or three cases afterwards, but not sufficiently. I did not give it a fair trial. It was by accident the successful case bled so profusely. I would not like to let a patient die without trying venesection. A little blood from the arm might relieve embarrassment, caused by the right side of the heart being unduly loaded, and turn the tide in his favour, and if the patient will not bleed there is no harm done. (Hon. Brigade-Surgeon F. E. McFarland, p. 136.)

Cholera Infantum.—As far as my experience goes, the usual routine treatment by opiates, brandy, and astringents, too often only serves to increase the vomiting. The first and most important point is to stop the vomiting, as, while this goes on, the patient cannot be nourished, nor can the diarrhœa be arrested. I have found one-sixth of a minim of creasote and one-half minim of tincture of iodine, in a drachm of camphor-mixture, given every half-hour, or repeated immediately for a few times, if rejected, by far the most effectual prescription I have tried for vomiting; often it acts like a charm. At the same time, between the doses, I give one-twelfth of a grain of calomel, or one-third of a grain of hydrargyum cum cretâ, rubbed up with a few grains of sugar of milk or magnesia. Often this checks the diarrhœa in a few hours, when, of course, the interval between the doses is prolonged gradually. If the diarrrhœa be very frequent, at the rate of forty or fifty discharges in a day, or if a few doses of the mercurial do not seem to produce some impression, I combine the hydrargyum cum cretâ with ten grains of bismuth, and give it every two hours. When the violence of the attack is over, one-sixth of a minim of creasote, with ten grains of bismuth, or with lime-water, or with chalk-mixture, is continued, at gradually lengthening intervals, as long as any diarrhœa remains. But, should the case remain unimproved for twelve hours, I give an enema of a drop or two, according to age, of tincture of opium, in a little starch. This restrains the diarrhœa powerfully. In severe cases, I always stop the milk entirely, and feed on barley-water as thick as good milk, with fifteen to thirty drops of port-wine frequently. This strong barley-water much resembles milk in its properties, *minus* the casein.

Beef-tea is badly borne in such cases; besides, it is a mere stimulant, and not so effectual as wine. All infants' artificial foods, and other forms of starch, are simply hurtful, as they pass through the alimentary canal changed, indeed, but not in the slightest digested, just as the casein appears as curds in the dejections. In fact, fermentation, and not chymification, is going on in the stomach and duodenum. Lionel Beale tells us that, in these cases, ordinary bacteria (*e.g.*, the *Bacillus termo*) often grow and multiply to an enormous extent in the casein-clots. He says: "Children may, under these circumstances, die of starvation, although but too liberally fed during the whole period of the illness; for the food merely serves to encourage the growth of bacteria, and it undergoes changes which interfere with its digestion and absorption." May this not explain the great efficiency of the plan of treatment described? Iodine and creasote are powerful antiferments and antiseptics. Creasote, besides, has a local anæsthetic action on the terminal filaments of the nerves in the mucous membrane. But the action of creasote does not extend with much power beyond the stomach, and so is insufficient to arrest the intestinal affection; here, however, the mercurial comes in, which is a powerful germicide and alterative, besides being, in small doses, perhaps the most powerful sedative to the gastro-intestinal mucous membrane, relieving vomiting and suspending purging, whether in child or in adult. I do not give opium, except as an enema in very urgent cases. The infant is easily narcotised, and the nervous system—an unknown morbid state of which bears a close relation to the disorder—is rendered so irritable by opium, that the symptoms are made worse by it. (Dr. John Strahan, Belfast, British Medical Journal, Aug. 22, p. 359.)

Exophthalmic Goitre.—*Ergot.*—There is no drug in my experience whose action is so beneficial in exophthalmic goitre as ergot. We know that when given in large doses, ergot acts in the following way on the heart and circulation: 1st, it slows the action of the heart; 2nd, it contracts the arteries; and, 3rd, it increases the blood pressure. How it acts in this disease I am unable to say, but the first sign that is noticed of its beneficial effects is a slowing of the circulation. From a considerable experience of its use in this disease, I have found that after two or three weeks' use, a pulse that is constantly beating at 130 or 140 is brought down to from 110 to 120. As the drug is continued, the swelling of the thyroid gradually diminishes also, and the protrusion of the eyeballs gradually recedes. To obtain marked amelioration, it is necessary to give it for at least three months. I have reported three cases of exophthalmic goitre treated by ergot, where the results were very satisfactory. In all a cure resulted. In a disease which tends in many cases to spontaneous cure, it is necessary to be very cautious in coming to a conclusion as to the virtue of any drug that may be used. Whether ergot has a directly curative power remains still to be proved. I think, however, that I am quite justified in saying that of all drugs we possess, it is the only one which seems to act with marked benefit in the disease. In order, however, to obtain its full physiological power, it is useless to prescribe it in the doses given in the Br. Ph. At least one drachm of the fluid extract should be given three times daily. Even from considerably larger doses than this I have never seen any untoward effects. (Dr. James Stewart, p. 128.)

Gout.—The treatment of gout in all its forms should be based on the recognition that the uric acid can only be got rid of by a process of oxygenation, and that it must pass off by the kidneys, never by the bowels. Purgatives in gout are always harmful in direct proportion as they promote the discharge of fluid from the intestinal surface and leave the renal secretion concentrated, so that the uric acid, which requires a very large proportion of fluid for its solution, blocks the tubes of the kidneys in the form of crystals. One reason for the specially frequent occurrence of these attacks in warm weather is the loss of fluid by perspiration, and consequent concentration of the kidney excretion. If uric acid can crystallise, it *will*. I would only add that I am obtaining marked and satisfactory results in acute and subacute gout from the use of the following mixture. It relieves the pain almost immediately, reduces swellings, and raises the proportion of urea in the urine—as readily estimated by the hypo-bromite test—from 50 to 100 per cent. in a few hours. I *never* use colchicum, and I do not get either organic complications or serious depression. I do not starve my patients, or cut off their supplies of nitrogenous food; because I believe a vigorously trophic state is physiologically necessary to facilitate the oxidation of the uric acid, and to secure the due and rapid elimination of the products of disassimilation, as urea. I have now employed this formula in a very large number of cases, and with so much success, that I cannot hesitate to urge its consideration on my fellow practitioners:—Ammonii chloridi, ʒ iv.; potassæ chloratis, ʒ ij.; glycerini, ʒ xii.; tincturæ iodi, ʒ ij.; aquæ ad ℥xii. Misce. Fiat mistura, cujus sumantur cochlearia duo magna tertia, quarta, vel sexta, quaque hora. (Dr. J. Mortimer Granville, London, Lancet, Aug. 16, p. 272.)

Gout and Bronchitis.—The gouty form of dyscrasia is exceedingly common not only amongst private patients, but also the working classes. But, common as it is, gout is found in a very much smaller proportion of the total number of our hospital patients than of the bronchitic class of patients taken by themselves; hence I think I am justified in the conclusion that there is really an intimate relation between a gouty constitution and chronic bronchitis, and that in many cases in which a hereditary tendency to gout has not been developed into the characteristic form of that disease it manifests itself in the form of chronic bronchitis. In further support of these views I may mention that I have frequently known bronchitis and gout or rheumatism habitually to alternate, an obstinate attack of bronchitis sometimes subsiding on the occurrence of a fit of gout, and again at other times a smart fit of gout being relieved by the development of bronchitis. There was an elderly man for a long time under my care. His ailments were rheumatic gout, eczema, and bronchitis, and he was rarely, if ever, free from some one of them. No two of the three were ever present together; but just as he was congratulating himself on having got rid of the rheumatism, his legs would be attacked with eczema, and this would disappear in a few weeks, to be succeeded by an attack of bronchitis. (Dr. George St. George, Surgeon to the Antrim Infirmary, Dublin Journal, May, p. 421.)

Rheumatic Fever.—*The Sweating of.*—What determines the remarkable activity of the sweat-glands observed in this disease is not yet ascertained; but in any given case it can hardly admit of doubt that, whatever the temperature of the patient for the time being may be, except for this copious perspiration the temperature would at once be higher. It is just so much natural and spontaneous heat discharge, and the true indication assuredly is to favour and facilitate it and to assist cutaneous transpiration. But how often has just an opposite course been pursued! The patient, from an exaggerated dread of chill and the painfulness of all movement, has been allowed to remain for days together under an impervious load of blankets and counterpane, enveloped in flannel, his skin uncleansed, the immediate environment of his body stagnant as well as fœtid, and with by and by a copious miliary eruption testifying to the folly perpetrated. In the emphatic language of Dr. Sydney Ringer (to whom we are indebted for the first record of cases of hyperpyrexia), "these woollen clothes are worn day after day, till saturated with putrefying perspiration, the stench sickens and de-appetises the patient, and a crop of irritating miliary vesicles is engendered which breaks the patient's sleep. (Dr. Henry F. A. Goodridge, Physician to Bath Royal Hospital; Practitioner, July, p. 5.)

Scarlatina.—*Aperients.*—With regard to the value of aperients during the eruptive stage of scarlatina, if the practitioner would adopt the following treatment, I have no doubt his dread of aperients would cease, and the results prove as satisfactory as they have been to me. To expedite the complete removal of feculent matter from the bowels, give two ample enemata of warm water in rapid succession. Then give a dose of castor-oil every five hours, until the evacuations become of a yellow colour. Maintain this character by the daily administration of the same remedy in diminished doses (to expurgate the poison), and I will guarantee that there shall be less anxiety on the doctor's part, that the patient's life shall be more free from danger, and that the dreaded sequelæ shall be conspicuous by their absence. To realise the full benefit of this treatment, it should be adopted at the earliest appearance of the disease. Although castor-oil stimulates the muscular action of the bowels, it powerfully soothes all mucous surfaces, as is proved from its practical value to the eye, when in distress from any cause of irritation. (Mr. H. Armstrong Rawlins, Maida Vale, British Medical Journal, Aug. 16, p. 319.)

Typhoid Fever.—*Destruction of the Bacillus.*—The ammoniacal salts possess a far-reaching effect, of which the *modus operandi* has hitherto remained unrecognised. It is a law, we are told, that no organism can live in its own excreta. Hence the microbe of enteric fever, whose own life-processes comprise the conversion of the patient's nitrogenous tissue into ammonia, perishes if the system be saturated with ammoniacal salts. For a disease in which ammonia is the excretory product, ammonia is the most efficient germicide; for this nitrogenous base not only supplies the nitrogenous waste, but also destroys the vitality of the organism which causes it. (Dr. J. K. Jackson, U.S.A., Medical Times, July 26, p. 121.)

Tympanites in Typhus Fever.—The following hint on the treatment of tympanites is worth remembering. The application of ice to the surface of the abdomen is, in my opinion, by far the best way of treating great distension. It may be conveniently applied by putting small pieces between two folds of flannel. It is especially indicated in hemorrhage. By this means a considerable reduction of the general temperature may be effected. (Dr. William Cayley, Dublin Journal, Aug., p. 151.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Acute Mania.—*Hyoscyamin.*—I have tried this alkaloid in twelve cases of acute mania, and found it answer admirably. Hyoscyamin is undoubtedly of great service in certain cases of mania where the patient is violent and cannot be restrained. It is certain in its action, quieting the patient within a quarter of an hour after administration, through its effect on the nervous system. The sleep produced is very deep, and the muscular power greatly weakened by its direct paralysing action on the spinal cord. Whether this drug has any curative effect or no it would be difficult to say; but I imagine it is chiefly through the complete rest produced that its beneficial action is seen. There is no doubt that lengthened sleep in cases of acute mania does good, and the longer a patient continues in an acutely excited state the greater is the danger of permanent mental injury. After repose the patient awakes refreshed, and with greater strength to withstand mental excitement. An objection to the use of hyoscyamin is that it is so very expensive. I think the better plan is to give a large dose at once than to administer smaller ones at intervals; for in the cases which are most benefited by this drug the difficulty is to get the patient to take more than one dose, and to frequently disturb only tends to make his excitement greater. There is no danger in three-quarter grain doses, nor is nausea or sickness produced. The pulse at first is very much quickened and stronger, and then gradually gets slower and loses strength. The faced is flushed and the pupils greatly dilated by its stimulating action on the peripheral ends of the sympathetic. The breathing is in a few cases stertorous, but in the majority quiet. On waking, spectral illusions are apt to be present. When given in small doses the sleep procured is very restless and disturbed. (Dr. C. Theodore Ewart, Salisbury, Lancet, Aug. 18, p. 273.)

Ammonia—Therapeutic Uses.—In our endeavours to help those who have acquired the vicious habits of consuming too much alcohol, ammonia is of great use, but it ought to be given in doses far larger than those in which it is usually prescribed. One of my patients assures me that he found ammonia very beneficial, that it relieved him of the feeling of tiredness from which he frequently suffered, and enabled him to perform hard work without getting exhausted. Not only have I found great benefit result from giving ammonia in considerable doses in many low forms of illness, but I have experienced its good effects by taking it myself. It acts very differently from any form of alcohol, although its effect upon the patient as judged from his own sensations appears to be somewhat similar. Though no feeling of hilarity seems to be induced by it, the lowness and depression of spirits and the tired feeling affecting the muscles, or rather the nerves and nerve centres by which they are supplied, are often removed in the course of half an hour or less by a dose of ammonia. Ammonia may be given in much larger doses than are generally prescribed, and it need not be diluted to the degree generally supposed to be necessary. We used to be taught that five grains of carbonate of ammonia should be dissolved in at least an ounce of water, but as one of my patients took as much as twenty-five grains per ounce, and continued this three times a day for three years, we may feel satisfied that a solution of from ten to fifteen grains per ounce may be taken without difficulty, and I have prescribed this as often as once an hour in cases where the heart's action was very feeble and a decided stimulant was evidently necessary. The public have discovered the value of sal volatile in cases of cold-catching and many minor ailments, but ammonia, like many other substances of real value in the treatment of many departures from the healthy state, has lately been somewhat neglected, and is, like some other valuable remedies, in danger of being forgotten amid the multitude of new preparations which thrust themselves upon our notice. (Dr. Lionel S. Beale, p. 230.)

EPILEPSY.—*Effects of Prolonged Administration of the Bromides.*—Medicinal doses of the bromides produce in healthy persons a general diminution of nervous energy. They act as a sedative, and thus dispose to repose and sleep. If they are excessive in quantity and long continued, especially in those susceptible to their action, a series of toxic effects are produced. Various organs and functions of the body are influenced, and the results of the poison may be briefly summed up as follows :—The intellectual faculties are blunted, the memory is impaired, the ideas confused, the patient is dull, stupid, and apathetic, and has a constant tendency to somnolence. The speech is impeded and slow, and the tongue is tremulous. The special senses are weakened. The body, as a whole, is infirm, the limbs feeble, and the gait staggering and incoördinated. The reflex excitability is lowered and the sensibility diminished. The sexual powers are impaired or abolished. These symptoms may be present in a variety of degrees, and in advanced cases even imbecility or paralysis may ensue. The mucous membranes become dry and insensitive. especially those of the fauces. This is attended with various functional disorders, such as nausea, flatulence, gastric catarrh, diarrhœa, &c. The skin is pale, and the extremities are cold. The action of the heart is slow and weak. The respiration is shallow, hurried, and imperfect. The integument is frequently covered with an acne-like eruption. To these symptoms may be added a general cachexia. All these abnormal conditions, as a rule, disappear when the consumption of the poison is arrested. (Dr. A. Hughes Bennett, p. 148.)

HEADACHE.—*Menthol.*—A writer in the Therapeutic Gazette says that this drug has never failed to relieve his own headache or any nervous headache in his care. He simply wets his finger with the following mixture, and passes it several times over the forehead:—℞. Menthol, 1 drachm; alcohol, 1 ounce; oil of cloves, oil of cinnamon, of each 20 minims. In the pain of chronic rheumatism of elbow and knee joints, it affords prompt relief, and in the writer's own case of sciatica, rubbed down the groin and thigh it acted like a charm. (Dublin Journal, July, p. 92.)

HYSTERIA, CHOREA, NEURALGIA, FACIAL PARALYSIS, AND OTHER NEUROSES IN FEMALES.—*Counter-irritation.*—I have invariably observed in every case of hysteria, chorea, neuralgia, facial paralysis, and other neuroses in females, the co-existence of pronounced spinal tenderness on pressure over the fourth or fifth, more frequently the fourth and fifth dorsal vertebræ; with this practical result, the almost invariable and rapid cure of those maladies by remedies applied over these vertebræ alone. Further observation elicited the extraordinary fact that this local spinal peculiarity, which at first I had looked upon as a morbid symptom, and the heritage of enfeebled constitutions, was in reality the normal condition of every healthy individual as well, of every age and class. Anyone may satisfy himself by tapping sharply over the dorsal spines of a friend, when the phenomena I have noted will at once become evident; or, if still doubtful, he can experience in his own person its reality, through the instrumentality of another; but the knuckles or the percussion hammer must be made to strike the spinous processes vertically and not at an obtuse angle, or in a careless or perfunctory manner, as otherwise disappointment is likely to result. Among the ailments which yielded so rapidly to the counter-irritant treatment were trigeminal neuralgia, facial paralysis (Bell's), acute hysteria, dysmenorrhœa, the reflex vomiting, the neuralgic toothache and the pruritus pudendi of pregnancy, gastralgia and other neuroses; and when vesication was the method adopted, I was generally able to assure the invalid that in five hours, coincident with the formation of the blister, all painful symptoms would permanently take their departure. By neuralgia I mean the typical disease of remittent character generally, but not always, departing at night, to recur at the same hour every morning, or *vice versâ*, and not that hybrid ailment, principally rheumatic, so often miscalled chorea, has almost always yielded to this plan of treatment, with some important exceptions, including the chorea of pregnancy, and that form depending on organic cardiac disease. The dysmenorrhœa of neuralgic type yields readily, and I have not once failed for many years by a single vesication over these vertebræ to put an end at once to the sickness of pregnancy for the whole remaining period of gestation, no matter at what stage I was consulted. The neuralgic toothache, and the pruritus pudendi of the puerperal condition, yielded as readily, and to one application. (Dr. Alexander Harkin, p. 144.)

Loss of the Knee-jerk in Spinal Disease.—Loss of the knee-jerk is found in all cases of uncomplicated tabes in which we have to do with sclerosis of the posterior columns in the lumbar portion of the cord; and this symptom is of the greatest diagnostic value, more especially in those by no means unfrequent cases where the other symptoms of spinal disease are somewhat indistinct, and it may be overshadowed by signs which are apt to be referred to stomach and liver derangement, or are believed to be owing to gout, hypochondriasis, and other diseases. (Dr. Julius Althaus, p. 142.)

Paraldehyde as a Hypnotic and Sedative. — Since the reports of Cervello and of Morselli upon this drug it has been tried by several other observers (*Retrospect*, vol. 88, p. 14). Albertoni gave it to seven insane patients in large doses (three to nine grammes). His results confirm in the main those of Morselli. Dr. Quinlan has tried it in some cases with satisfactory results. It acted like chloral but had no depressing effect. Dr. C. L. Dana tried it upon twelve cases—nine of insomnia, one of supra-orbital neuralgia, two of nervous irritability. It acted well in seven of the cases of insomnia, and in both of the cases of nervous irritability. It had a temporary anodyne effect. It is not so powerful as chloral, but it is quite as disagreeable to the taste. Dr. Dana also also administered it in large doses to a dog. It caused sleep but did not much affect the heart, but seriously disturbed the respiration. Otto Berger has used paraldehyde in eighty cases—in nineteen sound sleep was produced which lasted several hours; in forty-two, short sleep of one-half to two hours followed; in nineteen, no sleep. Bad after-effects were not present or were slight. The pulse was not much affected. Berger thinks it very valuable in cases where chloral does not act well. Dr. J. Brown reports having used paraldehyde in several cases. In doses of thirty to forty minims it caused sleep. The cost and the disagreeable taste were objections. (Dublin Journal, March, p. 269.)

M. Dujardin-Beaumetz thus describes this new hypnotic: It is a triple condensation of aldehyde (C_2H_4O), and is denoted by the formula $3(C_2H_4O)$, or $C_6H_{12}O_3$. Aldehyde has hypnotic properties, but can not be swallowed on account of irritating vapours which are given off in great quantities when it is taken into the mouth, and produce most distressing choking and lachrymation. Paraldehyde is crystalline, and soluble in ten parts of water; it is entirely free from the disadvantages of aldehyde. The author has employed it largely in the following prescription: ℞. Paraldehyde, ʒ ij; alcohol ℥ij; syr. simp., ℥ij; tr. vanillæ, ʒ j. M. Sig. One or two tablespoonfuls. All patients agree that it is less unpleasant to take than chloral. Its hypnotic effect is well marked, but it has no anodyne properties whatever. Patients awake from its influence without headache or discomfort of any sort. It has no effect upon the secretions. In cases where there is pain or very intense restlessness, as in uræmia, opium or chloral is to be preferred. But, where a simple insomnia is to be treated, paraldehyde meets the requirements better than any drug the author has ever seen. Iu seems not to have any tendency to depress the heart or the respiratory system, as has been abundantly proved by experiments upon dogs; and the sleep caused by it is so light and natural that a slight pinch causes awakening, even after large doses have been taken. The author has used it in a great number of cases, but not long enough to determine whether there is a tendency to form a habit, as in the case of chloral. (New York Med. Journal, July 12, p. 52.)

The new hypnotic called paraldehyde is claiming the attention of the profession, as in some respects it is superior to chloral, as it is very safe to give in simple sleeplessness, and leaves no unpleasant after-effects. However, it is of no use where insomnolency is the result of pain. It is given in the following formula:—Paraldehyde ʒ j, syrup of orange ℥j, water ℥j. To be taken at bedtime. (Medical Press, July 2, p. 7.)

SCIATICA AND ITS ALLIES.—*The Thermal Waters of Bath.*—(1) Never allow the acute and early stages of sciatica to come and go without a resolute effort to grapple with them. Order complete rest and a posture on the sound side; a strictly milk and vegetable diet; and, whatever else may be done outside and inside, give every three or four hours, for some days, twenty grains of salicylate of soda with a little iodide of potassium and bicarbonate of potash, abundantly diluted with water. (2) At the right time remember galvanic electricity, and apply it in the way described by Dr. Wilks in his lectures on the Diseases of the Nervous System. Let the current run down the painful limb without moving the rheophores. Place the positive pole over the spine or the hip and the negative pole on the foot, and then let the current run for fifteen minutes or longer. (3) There is the grand resource of bathing in hot water, of which the natural thermal springs of Bath furnish an unlimited supply, with the collateral advantages of comfortable and luxurious baths. Bulk, and the alkaline quality of the water have much to do with its therapeutic virtue. (Dr. J. Kent Spender, p. 159.)

SECONDARY SUTURE OF THE MEDIAN NERVE.—At the Academy of Sciences, M. Tillaux related two cases of secondary suture of the median nerve, followed by rapid restoration of the functions in the parts depending upon it. The first was a girl who cut the front of her wrist whilst cleaning some windows in Nov., 1883. The wound healed without suture of the nerve being performed, and there remained complete paralysis of all the parts supplied by it. Incapable of working, the girl went to the Beaujon Hospital to seek relief. The parts supplied by the median nerve were found to be colder than on the opposite side, and of a slightly violet colour. Notwithstanding the discouraging nature of the case, M. Tillaux decided to give the patient a chance. The ends of the nerve were found about a centimetre distant from one another, the central one bulbous, the peripheral atrophied. They were cut so as to present a fresh equal surface and carefully drawn together by a hair suture (*crin de Florence*). An antiseptic dressing was applied and the limb immobilised in extreme flexion. Two days after the operation sensibility began to return and increased daily. Six weeks later she left the hospital with sensibility and movement entirely restored. The other patient was a woman who, witnessing the result in this case, begged M. Tillaux to operate upon her also, notwithstanding that the accident had occurred fourteen years before. The operation was identical, and the next day sensibility began to return, and was soon entirely restored. The physiological curiosity of these cases lies in the fact that when examined microscopically (by M. Ranvier) the portions of nerve removed exhibited no trace of cylinder-axis, and that it is difficult to explain the restoration of function by our present ideas on the subject. M. Tillaux's observations may be the starting-point of an important discovery. (Lancet, July 19, p. 116.)

Stammering.—Anyone may be cured of stammering by simply making an audible note in expiration before each word. Stammerers can sing as easily as other persons. Jacky Broster, of Chester, who made a large fortune by curing stammering, simply made his pupils say *her* before each word beginning with a consonant. (Mr. Ralph Richardson, British Med. Journal, Sept. 27, p. 644.)

Tetanus.—Dr. B. W. Richardson's opinion, expressed many years ago, was that the disease depended upon a poison developed in the wound as a result of decomposition; and this view has been sustained by the recent investigations of Coats, who believes that the special changes observed by him in the spinal cord are the secondary effects of a *materies morbi* which, circulating in the blood, acts primarily upon the blood-vessels themselves. Certain etiological and vital conditions are admittedly strongly in favour of such a view; the occurrence of idiopathic tetanus seems difficult of explanation upon any other supposition than that of an alteration in the blood itself. (Dr. J. A. Macdougall, Consulting Surgeon to the Cumberland Infirmary, Lancet, July 19, p. 99.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

Angina Pectoris, and other Urgent Cases.—*Substitute for Nitrite of Amyl Capsules.*—It must often happen to medical men, especially to those practising in the country, that, just when they want some nitrite of amyl capsules for administration in an urgent case, they find they are without them, and cannot obtain them without considerable delay. Although it is easy for the medical man himself to administer a few drops from a bottle by dropping, still it would be very dangerous to leave the bottle with the patient for self-administration, and therefore the remedy cannot be employed till the medical man has again been summoned. To provide for the above contingency, I think the following plan will be found both convenient and economical. Some small wide-mouthed bottles should be obtained with closely fitting corks, and into each bottle a little cotton-wool should be placed. All that is necessary is to drop the required dose into the bottle, cork it tightly, and invert it. In this inverted position, the nitrite of amyl will retain its properties unimpaired for a considerable time, for some months at least, and can be used by simply removing the cork and applying the bottle to the nose of the patient. (Dr. R. L. Batterbury, Berkhampstead, British Med. Journal, May 3, p. 854.)

CAFFEINE.—*Its action on the Cardiac, Nervous, and Muscular Systems.*—Dr. Leblond, in La Tribune Méd., thus sums up a series of papers on the physiological and therapeutic properties of this article:—1. Caffeine is an excitant of the nervous and muscular system. 2. It diminishes the frequency of the pulse, increasing the force of the heart-beat and blood-pressure by the vasomotor constrictors. 3. It lowers the peripheral temperature. 4. It has no influence on the formation of excretion of urea. *Of the poisonous dose*:—1. Caffeine exaggerates the excitomotor force of the spinal cord, paralyses the peripheral sensitive nerves, and diminishes the sensibility of the pneumogastric. 2. It causes a rapid lowering of the blood-pressure through the paralysis of vasomotors. 3. The heart, in cold-blooded animals, beats slower and slower, to be finally stopped in systole; in warm-blooded animals, it becomes quicker at the close and stops in diastole. 4. It produces tetanic contraction of the muscles. 5. It rapidly lowers the temperature. 6. It increases malassimilation. *As a therapeutic agent*:—1. It is, as a rule, tolerated much better by the system than is digitalis, and by beginning with small doses, there is no fear of the bad effects often produced by the latter. 2. It steadies the heart, increasing its force and slowing its beats. 3. It produces more or less of a diuresis. 4. Not only is it a substitute for digitalis, but it should *always* be administered in serious cases which may result in immediate death, because its action is surer and more prompt than that of digitalis. 5. It is best to administer the caffeine in small broken doses, in portions or subcutaneous injections, and to never begin with a stronger dose than 20 centigrammes, to determine the susceptibility of the patient, then to increase the dose rapidly, if necessary, to from 50 to 75 centigrammes. It is useless to give more than 1 gramme 50. 6. In affections of the heart it should always be administered when, from any cause, the patient's condition requires that the use of digitalis should be stopped or when it is not well tolerated. 7. Caffeine seems to lower the temperature in pyrexia, being useful also in these cases as a heart tonic. 8. It is frequently very beneficial in albuminuria of cardiac or other origin. 9. And, finally, in cases of strangulated hernia it seems to act upon the muscular contraction of the intestine. (Midland Medical Miscellany.)

INTERMITTENT PULSE.—Intermittency of the pulse is a more common symptom than it formerly was, and the explanation is to be found in the increased emotional strain and excitement incident to our present mode of living, the affection being due to "nervous exhaustion of the vital nervous system." When not present in an exaggerated degree, intermittency of the pulse is often less dangerous than it seems. It does not, as might be feared, carry with it the necessary idea of sudden dissolution from heart disease, for the heart is the regulator, not the prime mover, of the circulation. The harmlessness of the symptom in its moderate development is shown by the fact of its common occurrence after middle age, and by the long duration of life in many of those who present it. At the same time the symptom has its significance. Occurring in infancy, it is an important indication of serious nervous derangement. Occurring in young adults, it has the same meaning, and tells the story of commencing failure of power. Occurring suddenly after any great event, which has told upon the mind, it may be a sign of very serious import. By far the greater number of persons whose pulse exhibits intermittency are unaware of the fact, and only in cases where the intermittent period extends over as many as five normal heart-beats, or recurs often in a minute is consciousness of its occurrence produced, and such cases proceed along a certain course to death when the symptom is persistently present. Persons with intermittent pulse offer less resistance to disease, owing to the impairment of nervous energy, of which the pulse change is characteristic; and also they possess diminished power of recovering from surgical operations, as compared with individuals of normal circulation, and for the same reason. Intermittent pulse in children may pass away, but it is never got rid of when appearing for the first time at or past middle age, although it is not incompatible with the attainment of even extreme old age. One of my patients, who died at 86 years of age, was discovered to have this character of pulse when only 42. The symptom may be inherited; a case is quoted of an infant in whom it was distinguished an hour after birth, and now, twenty-five years after, the intermittency always appears under great strain or during depression. In children especially is it essential to avoid all undue intellectual and emotional strain, and to encourage the taking of a plentiful amount of sleep. In adults, too, equal attention should be paid to removing impressions derived from untoward events, and to regulating diet and promoting repose. (Dr. B. W. Richardson, Medical Press, July 30, p. 98.)

VARICOSE VEINS.—*Perchloride of Iron.*—In an article in The Lancet of June 6th, 1874, it was stated that M. Simon, of Verviers, had used the perchloride of iron with great success. I can confirm this treatment; for, ever since, now ten years, I have employed the same with unfailing success in varicose veins of the legs. The solution recommended by M. Simon is nearly the same as the liq. ferri perchlor. B.P. (the milder solution), which I use. The only modification I substitute is absorbent lint for flannel, as used by M. Simon, for compress; nor do I wring the pledgets dry, as recommended by him, but leave them moist; it seems to me to act more readily. I have just succeeded in curing an old gentleman aged seventy years, who has been suffering from varicose veins of the right leg for forty years. For the last few months the pain has been excruciating, the patient getting little or no sleep, and being totally incapacitated for business. He had a large ulcer extending from the external malleolus along the outer edge of the tibia half round the back of the leg, considerably larger than the palm of the hand. I drew pieces of strapping across the ulcer in the ordinary way, then applied pieces of absorbent lint two or three inches long, slightly rolled, soaked in the solution of perchloride of iron, and applied them as compresses lengthwise on the veins. They were supported *in situ* by a bandage of thin flannel, called "domet," instead of the ordinary flannel, as it adapts itself better to the limb. This is reapplied every day for a week; then every other day. In a fortnight the varices had all disappeared, and the veins could be felt as hard wires under the skin. In six weeks the ulcer was healed, and the patient is now able to take long walks and attend to his business as accountant. I think the same may be applied to varicocele, though strapping would probably be required to retain the compresses *in situ*. (Mr. J. H. H. Lewellin, Prahran, Australia, Lancet, August 16, p. 307.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

ASTHMA.—*Iodide of Potassium.*—Frensdorf recommends iodide of potash as a prompt and efficient remedy in this affection. He dispenses it in doses of 3 grammes (gr. xlv.) three times daily. Not unfrequently the dyspnœa yields the same day; if not, smaller doses were repeated the following day. The catarrhal condition that usually accompanies an attack was treated with 1·5—2·0 grammes (gr. xx—gr. xxv), continued for some time. In the author's estimation this plan of treatment also did much good as a prophylactic, if not to keep them away entirely, then to lengthen the intervals between the attacks. Iodism, when present, is no reason why the remedy should be suspended; the symptoms disappear very rapidly, and the treatment can be continued. (Therapeutic Gazette, June, 1884.)

Himrod's Mixture.—J. S. Hearn says that this consists of equal parts by weight of powdered lobelia, stramonium leaves, nitrate of potash and black tea, well mixed and sifted together. (St. Louis Courier of Medicine.)

Acute Laryngitis in Young Children.—Acute laryngitis in young children is often a grave malady on account of the attacks of nocturnal dyspnœa (laryngismus stridulus, or false croup) which frequently accompany it. These attacks often assume a very alarming aspect and are constantly mistaken for attacks of true croup. In the middle of the night it wakes up with an alarming attack of dispnœa accompanied with loud stridulous inspiration, a dry hacking cough, and hoarseness of voice. The dyspnœa is eften intense and is attended with great restlessness and anxiety. Careful inspection of the throat will satisfy you that the attack is not due to any membranous or diphtheritic exudation. As a rule, these attacks of dyspnœa pass off after a longer or shorter interval and are unattended by danger; but the attacks have such a serious and alarming appearance, and the anxiety of the little patient's relatives is generally so great that some active treatment is urgently demanded. Hot sponges applied to the laryngeal region are useful; and while some think highly of a few small and rapidly repeated doses of aconite in these cases, others think better of emetic doses of ipecacuanha and tartarised antimony. Certainly a sixth of a grain of tartarised antimony with 30 or 40 minims of ipecacuanha wine, mixed with a teaspoonful of warm water, will cut such attacks short in a striking manner. If, however, there is œdema of the glottis, which cannot be thus relieved, and scarification is impossible or fails to be efficacious, while the dyspnœa continues to be alarming, then tracheotomy must be performed. (Dr. I. Burney Yeo, p. 189.)

Chronic Laryngeal Catarrh.—It is often brought on by overtaxing the vocal organs in public speaking, singing, &c., so that it is common to find this affection amongst clergymen, public singers, and actors. It is also, in some cases, due to an extension of a catarrhal condition from the pharyngeal mucous membrane, as in drunkards, and inveterate consumers of tobacco. The hoarse voice of drunkards is well known. It also forms a part of the morbid changes which affect the larynx in phthisis and syphilis. The treatment of this troublesome affection requires, first of all, the removal of the exciting cause. Absolute rest of the organ must be insisted upon in the case of public speakers, actors, and singers. Local applications are mainly to be relied upon in the treatment of this disease. These are applied to the larynx by the physician himself, usually by means of a brush and with the help of the laryngoscope. Various astringent remedies are employed for this purpose, and each physician usually has his favourite remedy. Ziemssen extols the use of strong solutions of nitrate of silver, 16 grains and upwards to the ounce, and they are, doubtless, amongst the most efficacious remedies; the good effect lasts much longer than that of milder astringents, so that an application once a week or once a fortnight will suffice. Others prefer the chloride of zinc (20 grains to ℥), others chloride of iron (20 grains to ℥), alum (10 grains to ℥), tannin (10 grains to ℥), and so on. (Dr. I. Burney Yeo, p. 190.)

BRONCHITIS.—The constant breathing of hot and dry air in dwelling-rooms, especially if combined, as is too common, with imperfect ventilation, is a fruitful source of a tendency to bronchitis. The employment of gas in apartments, unless proper appliances be in use for carrying off the products of combustion and for admitting fresh supplies of pure air, produce a dangerous state of the atmosphere. These are things of no small consequence to be borne in mind in private practice. It is common for bronchitic patients to shut themselves up in close, hot rooms, and breathe impure air, with the idea that by so doing they are thereby avoiding draughts, although, in fact, they are aggravating their ailments by so doing, and retarding their cure. (Dr. George St. George, Dublin Journal, May, p. 417.)

Acute Bronchial Catarrh.—There is no remedy with which I am acquainted which relieves the distressing dryness of the mucous membrane in the early stage of acute bronchial catarrh so completely as tartarised antimony. Small doses of this drug, combined with small doses of morphine or opium, you will find most efficacious in relieving attacks of acute bronchial catarrh. The opium relieves the irritative cough by lessening the sensitiveness of the bronchial mucous membrane; and the antimony greatly increases the secretions from it, and so relieves the dryness and swelling which accompany the first stage of bronchial catarrh. When there is much fever, and the temperature at the outset reaches nearly 103°, a few doses of aconite will be found useful at the commencement of the treatment. (Dr. I. Burney Yeo, Medical Times, July 12, p. 39.)

CORYZA. — This very troublesome complaint has scarcely received the attention it deserves, if we take into consideration the great number of sufferers and the serious laryngeal and pulmonary diseases to which it is too often a prelude. Amongst the host of remedies proposed for its abortive treatment, most of which are either of doubtful value or else difficult to procure or apply, or even dangerous to use, not one can be named of which it may be said that it is at every one's command, easy of application, unattended with danger, and really effective. No excuse is, therefore, needed in introducing to the notice of the profession the following simple yet thoroughly effective mode of treatment, which in my hands has never disappointed expectation. About a drachm of camphor, coarsely powdered, or shredded with a knife, is placed in an ordinary shaving jug, which is then half filled with boiling water. The patient, having made a paper cone (out of a sheet of brown paper or an old newspaper) large enough to surround his face by its wide extremity and the mouth of the jug by its narrow end, proceeds to respire freely, at each inhalation drawing the steam into his nostrils, and at each exhalation forcing it up against the outer surface of his nose and adjoining parts of the face. A twofold action is produced: the camphorated steam acts internally in a specific manner upon the whole extent of the mucous surfaces, and, externally, produces profuse diaphoresis of the skin covering the nose and sides of the face, there acting as a derivative from the inflamed Schneiderian membrane. The jug should be surrounded by a woollen cloth in order to prevent the water cooling, or, better, if a tin shaving-can be used, a small spirit lamp or heated iron may be placed beneath it, so as to maintain the heat of the water and the vaporisation of the camphor. The patient should continue his respirations (keeping the margins of the base of the paper cone closely applied round his face) from ten to twenty minutes, and this should be repeated three or four times in as many hours, till entire freedom from pain is experienced. Great relief is always felt even after the first application, and three or four usually effect a cure. Camphor, or some of its preparations, have, as is well known, been long in use in the treatment of colds, but the above-described method of employing it in conjunction with the vapour of water both as an internal and external application at the same time, has not, so far as I know, been previously brought to the notice of the profession, or, if brought, has not been recognised in any general or special medical work. The mode of application is, however, all important: but as this is neither troublesome or otherwise unpleasant to the patient, nor are the materials difficult to procure, camphor being everywhere a household drug, I believe that those who may give this treatment a trial will find it not only a simple, but also a most effective, remedy against coryza. (Surgeon-Major G. E. Dobson, Army Med. Dept., Lancet, May 31, p. 978.)

Croup.—A short time ago a Dr. Delthil wrote to the medical press on the treatment of diphtheria by a mixture of essence of turpentine and wood tar in the proportion of 200 grammes of tar to 80 of turpentine, to be used in fumigation. He averred having succeeded in two instances by this treatment, and strongly recommended it to his *confrères.* The sister disease—croup—might be submitted to the same treatment, and give similar results, but he had not had the opportunity of trying it. However, the advice was not forgotten by a very intelligent practitioner, Dr. Vigouroux, who writes a long account of a case of croup in the Gazette des Hôp. in which he puts Dr. Delthil's treatment to the test, and with full success. "I was called," writes Dr. Vigouroux, "on the 28th April last to the bedside of a child, æt. 3, who was presenting all the symptoms of the malady in question. The breathing was very difficult, and making the characteristic whistling of an advanced state. The examination of the pharynx showed extensive membranous exudation. I immediately ordered a vomitive, and a grain of sulphide of calcium every half-hour, and a mixture containing half a drachm of chlorate of potash, the throat to be well swabbed every two hours with the following solution:—Essence of turpentine ℥ss, glycerine ℥j. The next morning I found the child no better, and auscultation having shown me that the trachea for its whole length was covered with the false membranes, tracheotomy was out of the question. I ordered the same treatment to be continued, and although having lost completely all hope to save the patient, I determined to try as a last resource the treatment of Dr. Delthil. Accordingly, fumigations of the tar and turpentine were ordered in the proportion stated by my *confrère*, and the following day, to my great surprise, the father of the child came to fetch me, saying that his son was still alive, and seemed a little better. Arrived at the house, I found in truth that the patient was a little better, and although he was still aphonic, the breathing seemed to be less laboured. I questioned the parents as to how the child bore the inhalation of the black and irritating vapours given every three hours, and they said he appeared not to mind them. The fumigations were continued, and a vomitive given every day, which brought off each time false membranes. Each of the following days witnessed an improvement in the condition of the child, and on the 18th of May I considered him to be entirely recovered. I do not hesitate to attribute this remarkable cure to the tar and the turpentine, for the patient was in the jaws of death. However, I must not omit to state that this new method is very dirty, as the black vapours deposit themselves everywhere, and the persons who are around the patient become as black as coalheavers. But they are by no means injurious, and the child not only supports them well, but demands them, for he feels how much they relieve him. As to the disagreeableness of having objects in the room blackened, it can be prevented by withdrawing all that are portable; in any case no parents would hesitate between it and the life of their child." (Dr. Delthil, Dr. Vigouroux, Medical Press, July 2, p. 6.)

HÆMOPTYSIS.—I must confess that we have only a few drugs which we may really regard as controllers of pulmonary hemorrhage; but these few are really valuable. We too often overlook the clinical fact that in hæmoptysis one of the most urgent conditions to treat is the great restlessness and mental disturbance of the sufferer. He is in a state of great excitement and alarm, a condition also imparted to his friends, and by them as it were reflected on the patient again. This point requires our skill and attention. We have at our command a drug, opium (and its derivatives), which acts like a charm. So far as my experience goes it should not be given if administered internally with any other remedy likely to retard or interfere with its full action. Give it in such doses that its physiological effects are produced. If the hemorrhage be very profuse digitalis may be added, but also in large doses, such as fifteen minims to twenty minims of the tincture, till its specific action on the heart is manifest and the frequency of the pulse materially diminished. As a result the patient is calmed, his excited circulation controlled, and he falls into a much-needed sleep. There is yet another method of administering the sedative—viz., by hypodermic injection; and I have found this plan most useful and efficacious. Four minims of the injectio morphiæ hypodermica are introduced into the subcutaneous tissue of the arm, or, as I have sometimes preferred, into the subcutaneous tissue of the chest immediately over the presumed seat of the hemorrhage, and repeated if requisite. The advantage of this method of exhibiting the remedy is its speedy action; the momentary and trivial discomfort of the operation is more than counterbalanced by the good results which ensue. Of the forty-seven cases the notes of which form the basis of my paper, eighteen were adult patients suffering from severe pulmonary hemorrhage occurring in the second or third stages of phthisis, and were treated by opium and digitalis internally or by morphia hypodermic injection, with good results in all. So far as I am able to judge of the effects of remedies the above method of treatment is happier in its immediate results than the administration of astringents and so-called styptics, which mainly affect the intestinal tract. Indeed, one of my chief desires in making this communication is to protest against the ordinary practice of prescribing drugs which probably do nothing more than produce a constipation, or the action of which on the circulatory system is more than open to doubt. There are, however, two other drugs which I have found extremely useful when opium is contra-indicated. I allude to oil of turpentine and the liquid extract of ergot. The former may be given by the mouth, the latter either by the mouth or by subcutaneous injection. I have seen excellent results from both in a few cases. The objection to turpentine is its nauseating effect, but its action in controlling hemorrhage is undoubted. My experience of ergot has not been extensive, but I found it a powerful remedy in four cases of severe and continued blood-spitting. (Dr. Seymour Taylor, p. 205.)

HAY FEVER.—The observations of Blackley, of Manchester, first published in 1873 (2nd edition, 1880), leave no doubt that the cause of hay fever is the action of pollen on the mucous membrane. His experiments were framed on a most comprehensive plan, and carried out in a rigorously scientific spirit. By well devised tests, he succeeded in proving: first, that in his own person the inhalation of pollen always produced the characteristic symptoms of hay fever; secondly, that in his own case, and in that of two other persons, there was a direct relation between the intensity of the symptoms and the amount of pollen floating in the air; and, thirdly, as already shown, that none of the other agents referred to, such as heat, light, dust, odours, or ozone, can of themselves cause the complaint. His experiments were made with pollen of various grasses and cereals, and with that of plants belonging to thirty-five other natural orders. The careful observations of Blackley show that, in England, during the season of hay fever, 95 per cent. of the pollen contained in the atmosphere belongs to the *graminaceæ*. This order generally comes into full blossom between the end of May and the latter part of July, and that is precisely the period of the year when hay fever prevails. If the season be wet and cold, the disease usually sets in rather later, and is milder in character than when the weather is fine, and the vegetation luxuriant. (Dr. Morrell Mackenzie, Phys. Hosp. Diseases of Throat, London. British Med. Journal, May 17, p. 939.)

HOOPING-COUGH.—*Resorcin.*—An excellent monograph on the nature and treatment of hooping-cough has recently appeared at Rio de Janeiro from the pen of M. Moncorvo, a most distinguished member of the medical profession in that country. He accepts in a great measure the consequences of the germ theory as regards pertussis, and looks on the affection as due to the presence of micrococci which proliferate abundantly upon the mucous membrane which coats the upper part of the larynx above the rima glottidis, where the epithelial cells become infiltrated, and which region appears to be the seat of election for the proliferation of the micrococci. Resorcin directly applied to the mucous membrane of the region indicated has led to diminution in the number of spasmodic attacks, which lose their intensity, whilst the total duration of the disease is shortened. The benefit is said to be wholly due to the resorcin, because no other means were employed. The drug was used in the strength of a one per cent. aqueous solution as a topical application, by means of a soft brush mounted on a long handle. The application was made three, four, or five times a day. (M. Moncorvo, Lancet, Sept. 27, p. 555.)

NASAL POLYPI.—The editor of the Asclepiad recommends the use of sodium ethylate in the treatment of nasal polypus. The caustic agent is applied by means of a probe made of soft cotton-wool twisted into shape on the points of a pair of forceps. This cotton probe is saturated with the ethylate and then plunged into the substance of the polypus. On removing the cotton it commonly happens that the patient can expel the whole mass of destroyed polypus, in a semifluid form, by blowing the nose sharply. A second application ought to be made with a view of destroying the base of the polypus. The mode of action is said to be sufficiently clear. The ethylate is decomposed by contact with the water of the polypus into caustic soda and alcohol; the latter coagulates the albuminoids and the former acts as a powerful caustic. With the exception of some burning pain no unpleasant effects seem to follow the use of this method. (Dr. B. W. Richardson, Lancet, July 26, p. 161.)

New Method of Removing.—In the Canada Medical Record Dr. Bell brings forward a new mode of treatment. It obviates any trouble from hemorrhage, which is frequently the case when the forceps or hook is used; it is painless and very simple. He gets the patient to blow strongly through the affected nostril, closing the other with his finger. "The polypus will be brought down so that it can be easily seen through the external nares; then with my hypodermic syringe charged with a solution of tannic acid in water (of the strengh of twenty grains to the fluid drachm), I pierce the polypus with the needle, and inject ten, fifteen, or twenty minims of solution, according to the size of tumour. In a few days the polypus shrivels and dries up (tanned); it comes away without any trouble or pain, and looks like a clot of dry blood, my patients usually removing it by blowing the nose or by their fingers." (Dr. Bell, Medical Press, May 7, p. 433.)

NIGHT SWEATS OF PHTHISIS.—*Strychnia, Nitrate of Pilocarpine, and Oxide of Zinc.*—At the Victoria-park Hospital, from six to twelve minims of strychnia solution were prescribed as a night draught in many cases, and it succeeded admirably in most of them. The full dose of twelve minims was seldom necessary, but no ill effects or discomfort was noticed from so large a dose. Some of the patients slept very much better during the exhibition of the strychnia, to which gratifying result the increased comfort of the patient from absence of damp clothes may in some measure have conduced; but I think the drug had a good deal to do with the increased sleep, as this was not noticed in other cases in which the sweats were prevented by other drugs; in one case it markedly lessened the cough. Nitrate of pilocarpine was also given as a night draught, in doses varying from one-twentieth to one-eighth of a grain, one-twelfth of a grain being the most usual dose; in the majority of the large number of cases in which it was given the result was good, the patients being most grateful for the relief from the sweating. It seldom produced any of its physiological action, and, even if it did so, it was very slight sweating for half an hour after the draught, except in one case. One morning note only was as follows: "Sweated copiously for an hour after the draught;" but in this case, as in the others, there was no more sweating for the rest of the night. In a few cases in which the night sweats had commenced before the administration of the night draught, the sweating quickly terminated. Occasionally the action of the draught was not of long enough duration; for if given at 9 p.m. sweating would commence about 4 a.m. next morning. It is well in these cases to repeat the draught in the middle of the night. Oxide of zinc, in doses, of from five to ten grains, was fairly successful in the few cases tried with it. In one case it was very successful indeed, as on discontinuing the drug the sweats recurred, to be again controlled by the same drug. It is necessary to state with regard to strychnia, and also pilocarpine, that their full action may not be developed the first night; also that the action of the drug lasts more than the one night; so that it is possible to discontinue the draught and yet no sweating occur for a few nights. (Dr. John E. Howe, Lancet, Sept. 6, p. 408.)

PHTHISIS.—*Etiology.*—The conclusions which follow I have endeavoured to establish as to the etiology of phthisis, with special reference to its contagiousness. None can be more sensible than myself of the many imperfections in the matter and form of my argument. 1. The historico-geographical argument is insufficient to prove that the present distribution of phthisis has been brought about by the carriage along lines of human intercourse of a special morbific germ. Indeed, many of the facts under this head are distinctly antagonistic to any such theory. 2. Before the discovery of the bacillus, one and all of the reputed causes of phthisis were inadequate to account for its distribution, or for the anatomical and clinical characters of the disease. 3. That these causes, even those among them which appeared to act as exciting causes, were all predisposing causes only. 4. That from the nature of these predisposing causes, their relation to each other and the conditions under which their influence seemed to make itself felt, it was a probable inference that phthisis belonged to the group of specific febrile diseases, and this view was held by some writers in the face of many difficulties and perplexities. 5. That the facts on which this inference was based were insufficient to prove that phthisis was personally contagious, and were indeed rather opposed to any such notion. 6. That the discovery of the bacillus proved that phthisis was a specific febrile disease, and thus the question of contagion cannot now be usefully discussed without acknowledging this fact. 7. That as some specific febrile diseases are contagious, and others not so, this property existing in very different degrees and modes in different members of the group, the question as to the contagiousness of phthisis can only be satisfactorily answered by direct evidence of its contagiousness and by determining its affinities with other members of the group. 8. That although phthisis may be undoubtedly produced in many ways experimentally in animals and also probably in man, there is not sufficient evidence to prove that its prevalence is materially affected by direct contagion. 9. That in many most important respects it very closely resembles ague. 10. That it is at least highly probable that the exciting cause of phthisis, like that of ague, be it the bacillus or some other micro-organism, is in no way dependent upon man for its existence, and is widely diffused, irrespective of human agency.—From these I may be allowed to make one short practical deduction—namely, that the prevention of phthisis, like that of ague, is to be attained by sanitary works, especially by improved ventilation and drainage, and not by isolation. And that for its cure, as we should not send a case of ague to the Pontine Marshes, so, too, it would be wise not to send a case of tubercular disease to any place where the death-rate from phthisis is high among the native population. (Dr. J. Andrew, Physician to St. Bartholomew's Hospital, Lancet, May 10, p. 837.)

Mullein Plant in Phthisis.—This plant is strongly recommended in pulmonary disease. From time immemorial the Irish peasantry have regarded this plant as an unfailing cure for consumption; and thus it is that an herb, which in England, France, and Germany is a mere wild weed, is in Ireland carefully cultivated on a very large scale. It is in constant demand, it is advertised in all the journals, and in fact, forms an article of ordinary commerce. It is a hardy biennial plant, with a strong stalk from half a metre to two metres high, with thick woolly and mucilaginous leaves, and a long flower spike with numerous yellow flowers. The method employed by the Irish peasantry is to take one hundred grammes of the fresh green leaves (or about thirty of the dried) and place them in rather more than one litre of fresh cow-milk. This is brought to a boil, and allowed to stand for ten minutes. The hot fluid is then filtered, is slightly sweetened, and is drank while warm. This whole quantity is taken twice or, in some cases, three times a day. It has a soothing pectoral effect, and, after a little time, is much liked by the patient. In the early and pretubercular stage of pulmonary consumption mullein has a weight-increasing and creative power greater than that of cod-liver oil, and nearly equal to that of Russian koumiss. It has been experimentally proved that this is due to the mullein, inasmuch as the milk alone fails to accomplish the same results. In cases in which tubercles are well established, or cavities exist, the mullein has a great power in relieving cough. In fact, such a patient taking it requires no cough mixture at all, and every practical physician will recognise the great boon which this power confers on the phthisical sufferers, whose stomachs are often hardly able to receive sufficient alimentary sustenance. Indeed, the mullein milk is looked on by them more as a food than as a medicine. In persons of very feeble digestion heaviness is often experienced after so much milk. This, however, can be completely relieved by allowing the boiled mullein milk to cool down to 50° C., and adding a teaspoonful of Benger's pancreatic fluid. It should then be left under cover for ten minutes. Phthisical diarrhœa is completely obviated by the mullein. This is, no doubt, aided by the milk, but also occurs when the mullein is prepared with water. All the symptoms of pulmonary consumption can be combated by the mullein, except colliquative perspirations—over them mullein has no influence; and in my cases I principally employed the hypodermic injection of the atropia sulphate. This is the exception to the sole mullein treatment to which I have already alluded. Mullein smoke applied directly to the respiratory passages has a great effect in relieving irritation, and spasmodic coughs, and coughs in general. The dried leaves of the mullein are broken up fine, and are smoked in an ordinary pipe, either pure or mixed with a little tobacco to flavour them. (Dr. F. J. B. Quinlan, p. 210.)

Disinfecting the Sputa of Phthisis.—Dr. Sormani, Professor of Hygiene at the University of Pavia, gave some interesting details at the Hygienic Congress of the Hague concerning experiments made this year on 150 guinea pigs with the sputa from phthisis. The object in each case was to ascertain what chemical or other methods would neutralise the bacillus, which it was previously ascertained existed in large numbers in the sputa. The results of these experiments were summarised in the following manner:—1. The bacilli of tuberculosis were generally very difficult to destroy; dryness, exposure to oxygen, putrefaction, and most disinfectants failed to produce any effect. 2. A temperature of 100° C. only killed the bacilli after at least five minutes of ebullition. 3. The artificial digestion of bacilli showed that they were the last of all living organisms to be destroyed by the gastric juices or chloridric acid. A very active digestion is necessary to kill this microbe. A healthy man may destroy the bacilli in his stomach, but an infant or an adult with his digestive faculties impaired would easily allow the germ to pass the stomach intact, and retain its virulence in the intestinal tube. This determined enteric ulcerations, &c. 4. The bacillus of tuberculosis can be preserved intact for a whole year when mixed with water. It is probable, though not proved, that it has retained its virulence during that time. Thus drinking water may become the means of propagating tuberculosis. It is probable that contaminated linen retains its virulence for five or six months. 5. Alcohol does not destroy the germ, and hard drinkers often suffer from tuberculosis. 6. Cod-liver oil, ozone, oxygenated preparations, and other similar remedies, have no effect in killing the bacillus, nor are benzoate of soda, salicylate of soda, sulphate of zinc and carbolic acid, iodide of silver, bromide, camphor, &c., of much greater use. They injure perhaps, but do not absolutely destroy the bacillus, at least not in the doses that can be taken without danger. 7. A more decisive action may be attributed to creasote, eucalyptol, pure carbolic acid, the naphthols, and bichloride of mercury. 8. For disinfecting spittoons, carbolic acid solution at 5 per cent. is thought sufficient, and Dr. Sormani asserts that the breath never contains any bacillus. He also suggested that essences of turpentine or eucalyptol should be diffused in the houses as an agent for the destruction of this special germ. (Dr. J. Sormani, Lancet, Sept. 20.)

PNEUMONIA.—*The Causes of.*—A very important point in connection with the etiology of pneumonia, and one as well that does not receive the attention it deserves in general practice, is that of the influence of insanitary surroundings on the disease. Facts now collected enable us to judge to how great an extent the affection may be dependent on defective drainage and sewer-gas poisoning. Another point, also in connection with etiology is, the influence exerted over the disease by intemperate habits. Hospital cases particularly, occurring as they most often do in persons addicted to the abuse of alcohol, afford instances in proof of the conclusion, that the high mortality observed among the intemperate subjects of pneumonia is a real effect; but in addition to this, alcoholic excess is not only an important factor in determining the issue of pneumonia, but is often of itself the actual exciting cause of the affection, and pneumonia owning this origin is at all ages the most fatal known form of the disease. (Editor of Medical Press, Aug. 27, p. 183.)

Is Pneumonia Infectious?—That pneumonia is sometimes conveyed from person to person must, we think, be admitted, notwithstanding that some of the examples quoted to that effect are capable of other explanation. Insanitary conditions—in which, probably, ill ventilation as well as defective drainage ought to be included—appear to favour such conveyance, and it would seem necessary that the intercourse should be intimate and prolonged, like that of patient and nurse, or of bedfellows. In such circumstances, infectious pneumonia must, we think, be admitted as a reality, a rare characteristic of the disease, of which we are not, at present, in a position to offer an explanation. Yet, while admitting as much, it must be affirmed, at the same time, that pneumonia, as we commonly see it, has no infectious character. (Ibid.)

Lobar Pneumonia. — In a disease like pneumonia, which is short-lived and in which there is such a great tendency to heart failure, a stimulant plan of treatment is in the majority of cases absolutely essential. I know that in children and young adults stimulants may be unnecessary. Aconite and tartar emetic may do good, but in the cases that I have had at the Infirmary I dared not give them. In one or two cases where I have used these drugs, the patients being young and the fever high, delirium has supervened, necessitating the free use of stimulants. So that although it is by no means always necessary to begin with alcoholic stimulants, still I find that it is, as a rule, safest to put the patient on tonics and stimulant medicines—e.g., cinchona and ammonia. I am perfectly sure that I have saved several lives by free stimulation with alcohol; and were I to have pneumonia myself, I would prefer to be under the care of a physician who had no dislike to the use of alcohol in this disease. As to the treatment of hyperpyrexia, quinine is the best remedy. To ease pain, morphia injections, hot poultices, or a few leeches suffice; I have several times seen good results from the result of the latter. Bloodletting in pneumonia, I believe, is rarely advisable, and in most cases is dangerous. In one case, where there was marked cyanosis, I bled to four or five ounces, with the result that the patient regained consciousness, but afterwards died. Perhaps if it had been done earlier it might have been more effectual. I have lately had four cases (occurring in the workhouse, and therefore seen on the day of the attack), in which the disease has been aborted by quinine in ten-grain doses. All these cases were characterised by rigor, rapid elevation of temperature to 104° or 105° F., and by the presence of fine crepitation. After the administration of a single ten-grain dose of quinine the temperature has immediately subsided, and the disease has not progressed, the fine crepitation disappearing in a day or two. For this knowledge I am indebted to Dr. Austin Flint, who says that pneumonia in its early stage may be aborted by quinine. In all cases seen early this mode of treatment ought to be tried. Where the lung will not resolve, I find the frequent application of iodine does good, or an occasional blister. (Dr. C. W. Suckling, Physician to Queen's Hospital, Birmingham, Lancet, Sept. 6, p. 407.)

The state of the lung having been ascertained, a jacket poultice is applied to the side affected, and this is renewed every four hours. A milk diet is given during the acute stage. If the heart's action be feeble, and particularly if the first sound be indistinct, stimulants are given, the amount and frequency being determined by the special needs of the patient. In cases of great feebleness brandy is given every two hours, every hour, or even every half hour. Carbonate of ammonia is given in five-grain doses about every four hours, along with senega, spirits of nitre, or other drug that special symptoms may render suitable. If the cough is very irritating and pain is severe, while there is no evidence of accumulating fluid in the air passages or of kidney complications, small doses of opium are given. I have rarely employed bleeding. In sthenic cases, however, considerable danger may arise from the over-distension of the venous system and of the right heart, due to the great obstruction which the blood meets in its passage through the lungs. Moderate bleeding under these circumstances lowers tension to a slight extent in the venous system, and enables the right heart to overtake its arrears. I am fully convinced that it is a mistake to lay down any one special course of treatment as the right and true one for all cases of pneumonia, or to suppose that such treatment if wisely directed must always succeed. (Dr. Richard Caton, Physician to Northern Hospital, Liverpool; Lancet, July 26, p. 138.)

THROAT, LUNG, AND EUSTACHIAN CASES.—*Iodoform Spray.*—I submit the partial results of some experiments I am now making. Iodoform can be dissolved in the ethers and essential oils. A saturated solution in alcohol contains 4 per cent., in oil of lavender 7 per cent., in ether 16 per cent., of iodoform (see Vulpius in the Archiv der Pharm., Jan. 1882). I believe chloroform dissolves somewhat less than ether, and its solution has the colour of tincture of cinnamon, B.P., though free iodine does not seem to be present. An ethereal solution is deep orange colour. At present I prepare a spray as follows:—Take of the ethereal solution, one drachm; of the chloroform solution, one scruple; of fresh tincture of senega, a drachm and a half; water to two ounces. The result is a straw-coloured mixture holding in suspension iodoform in a state of very fine subdivision. The addition of a little ol. pini sylvestris (before adding the water) will do much to disguise the odour of the iodoform, and probably supply a therapeutic adjunct of some value in throat, lung, and Eustachian cases. While I was assistant house-surgeon to the Rotherham Hospital and Dispensary, I tried iodoform (in half grain pills) pretty freely among our out-patients in cases of phthisis, and was not altogether displeased with some of the results obtained. In renewing the treatment I should incline to prescribe the drug in smaller doses, and in a finer state of division. (Mr. Alfred Leach, London, S.W., Lancet, May 31, p. 1012.)

TUBERCULAR DISEASE.—*Phosphorus.*—Phosphorus is a nutrient for exhausted nerve-substance, and it certainly seems a powerful absorbent of recent exudations. Phosphorated oil has even been said to promote the absorption of a cataract if it be rubbed over the eyebrow. In meningitis, we have exudation of yellow lymph about the base of the brain, beneath the arachnoid, and in the web of the pia mater. Prior to absorption, lymph undergoes a fatty transformation or solution, and this condition is speedily brought about by phosphorus, for the drug is well known speedily to induce fatty change in organs. Pathological knowledge appears, therefore, to point to the fitting medicine. I have employed phosphorus as well as the hypophosphites of potash and soda, and under the influence of these preparations have seen pleuritic thickenings melt away. Old standing consolidations of lung, that had existed for one, two, or three months, I have seen at once begin to move and disperse as soon as the hypophosphite of potash was given; and cases that have appeared to myself and others very like acute tubercle in the lungs have sometimes recovered on the hypophosphite treatment. I commenced, about twenty years ago, with phosphorated oil as a medicine, but, owing to its nauseous taste, I took before long to the use of the hypophosphite salts, which contain phosphorus in a very low state of oxidation; and certainly, in those lung-diseases which are of inflammatory exudative origin, and apt to run into phthisis, I know of no remedy to compare with the hypophosphites. Before the discovery of the tubercle-bacillus, I had come to the conviction, from observation, that there were cases of lung-disease where something seemed most decidedly to stop the way towards recovery by means of drugs given by the stomach. If inflammation be the sole agent that destroys the lung in phthisis, I should regard very few cases as incurable. It is the bacillus that seems to set the phosphorus-treatment at defiance; and I notice, at Victoria Park Hospital, that, just when I find the hypophosphites most helpless, then it is that my clinical assistant finds "lots of bacilli." A few weeks ago, we turned out as cured a case of unmistakable disease in the upper third of one lung, and in that case, no bacilli were found. (Dr. John C. Thorowgood, British Med. Journal, June 21, p. 1206.)

TUBERCULOSIS AND SCROFULOSIS IN CHILDREN.—Tuberculosis is exceedingly common in children, and evidences of it are found in more than half the children dying within the first six months, whose bodies are examined. The two objects of prophylaxis are, firstly, to combat the disposition to disease; and, secondly, to ward off infection. The first indication is fulfilled by providing good food, warm clothing, fresh air, and a country life. Infection, that is to say, the bacillus, finds its way either by inhalation, by food, by some mechanical inoculation, or by general diffusion from some previously isolated patch. The commonest path is by inhalation, and accordingly we find the primary disease most frequently in the thoracic cavity, the disease commencing in the bronchial glands, in the bronchi, or in the lung itself. To save the child from the introduction of the germ in this way, we should instil into those who have charge of it the danger that may arise from sleeping with, kissing, living in a small confined room with parents or relatives already diseased, and insist upon the necessity of efficient ventilation. Infection by food is not so frequent, but it may be caused by the milk of a diseased cow; boiling the milk removes this danger; and tubercular mothers should not be allowed to nurse their children. Mechanical inoculation may take place from lupus, ulcerating scrofulous glands, or other open scrofulous sores; and possibly, though it has never been proved, from vaccination. Should future investigation prove that the infection of tubercle is spread from these sources, then far greater care than is now taken must be exercised in allowing children suffering from these disorders to associate with the healthy. Swollen scrofulous glands should be removed. The treatment of tubercle and scrofula, as there is no specific remedy known, is comprised in careful managment of the symptoms, such as catarrh and diseases of the glands and bones, as they arise, in attention to general hygiene, and in the choice of a suitable climate. (Dr. Förster, in *Jahrbuch fur Kinderheilkunde*, Edinburgh Med. Journal, Aug., p. 184.)

Infection of Children by the Milk of Tuberculous Cows.—Tuberculosis luxuriates among cattle, and grows in large tumours and excrescences, compared with which human tuberculosis is a degenerate disease; and it is extremely common. It may be fairly concluded from experiments that healthy young animals, carefully selected and tended, may be safely fed with the milk of tuberculous cows without the rapid development of tuberculosis. In Vienna, New York, and elsewhere, efforts have recently been made to suppress the sale of milk from tuberculous cows by legal enactment. Though our observations do not suggest that a healthy child in a comfortable home would be hurt by the occasional ingestion of such milk, it would be rash to conclude, without further observations, that tubercle might not thus be engendered in an ill-fed and ill-clad child with an unhealthy heritage and a digestive mucous membrane eroded by frequent diarrhœa. (Dr. Francis Imlach, Liverpool, British Medical Journal, July 26, p. 175.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

Artificial Feeding of Infants.—"One Cow's Milk," so long talked about, is a vast improvement over the prepared foods in the market, but this does not make so good a diet for children as the milk from several cows. By having milk from several cows, if we should get an excess of one principle in one animal, it would be corrected by the deficiency of the same principle in another animal; therefore we get a standard milk by mixing several milks together. Take two teaspoonsful of crushed barley, add to twelve teaspoonsful of water, boil one-half hour; strain and add salt and bread soda, of each a piece equal to a small pea; one-half teaspoonful each of sugar of milk and good brown sugar; mix and add this to six tablespoonsful of milk from *several* cows. Have two nursing bottles, with black rubber nipples and tubes, thoroughly cleansed, and the one not in use placed in clean, cold water. A nipple should be used because it is more natural, and because the action of the muscles and glands of the mouth commence the digestive process for liquids as the same parts do, plus teeth, for solid food, and must be more physiological than feeding by a spoon. This is more apt to be too rich than too poor for infants from birth to two months of age. Each child must be made a special study. If the bowels are relaxed, use more barley; if constipated, add more water. If it vomits a solid curd, use more of the sugar of milk; if the discharges are sour, use more soda, or, what is better, one-half teaspoonful of Phillips' milk of magnesia. It will require four or five days to see if the above agrees with the infant. Barley is selected because it contains less starch, which is troublesome for young infants to digest; sugar of milk is used, because human milk contains more than the cow's, and tends to break up the cheese principle which cows' milk has over or in greater amount than in breast milk. If a child vomits its food, it should throw up the milk as a *soft* curd, *not* as a piece of cheese. Sugar of milk tends to this, *i.e.*, to break up the curd. After two months of age the milk is increased one tablespoonful, and one teaspoonful of barley or crushed wheat each month. If care is used the child, in a few weeks, will be of a pinkish colour, muscles will be hard, features *rounded*, but not *redundant*. (Dr. J. F. Gould, Boston, U.S., Archives of Pedriatics, March, p. 136.)

CANCER OF THE RECTUM.—1. Cancers of the rectum should not be touched, unless they cause grave disorders. This rule should be positive, with the single exception that very small cancerous deposits may be removed from the lower part of the rectum and the margin of the anus. 2. In all other cases the treatment should be confined to complications and palliative operations. 3. As palliative operations, rectotomy may be done when the finger can be passed beyond the upper limit of the neoplasm. If the neoplasm is more extensive, the surgeon should abandon rectotomy, and work out a way of derivation; for by performing rectotomy in these cases the surgeon is almost certain to injure the peritoneum. I am in favour of lumbar colotomy, because it is a simple operation, less dangerous, and affords a ready means of exit for the fæces. Other surgeons prefer to make an inguinal anus; but there is risk of opening the small intestine, with all the attendant dangers and inconveniences. (Professor Trélat, Necker Hospital, Paris, Revue de Thérap., May 15.)

CARIOUS TEETH.—*Solidified Creosote.*—In its application to carious teeth, creosote is often inconvenient in consequence of its fluidity producing ill effects upon the mucous membrane of the mouth. This may be obviated by giving to it a gelatinous solidity by adding ten parts of collodion to fifteen of creosote. This, besides being more manageable than liquid creosote, also closes up the orifice in the tooth, preventing the accession of the air to the dental nerve. (Progrès Médical, Medical Times, June 14, p. 792.)

CORPULENCE.—The moderate use of fat, by diminishing the decomposition of the albuminous elements of food, lessens the appetite, and so renders bearable the restriction of diet necessary in the treatment of corpulence. Allow in moderation such articles as *pâté de foie gras*, salmon, bacon fat, fat roast pork and mutton, kidney fat, asparagus, spinach, and the various legumes; but unconditionally forbid the consumption of sugar, sweets, and potatoes, and limit the allowance of bread to from three to three-and-a-half ounces a day. (Dr. Wilhelm Ebstein, Medical Times, June 28, p. 878.)

DENTISTRY.—*Peroxide of Hydrogen as an Antiseptic in.*—In peroxide of hydrogen the dentist has found an effective remedy, and its use in this connection forms an excellent illustration of the properties of this agent. The septic abscess is caused to heal by one application made in the following manner: After removing the pulp and passing a broach through the canal of the root into the abscess cavity, a drop of the liquid is injected by means of Farrar's syringe. The cavity of the crown is then immediately closed with softened gutta-percha, before which, under pressure of the finger, the liquid is driven into the abscess cavity. Upon coming into contact with the pus in the fœtid cavity, the liberated gas permeates it throughout, and by the continued evolution of the gas the cavity is emptied of its contents, which boil out at the fistulous opening so thoroughly mixed that the appearance is that of foam or froth; while the remnant not thus removed is rendered so thoroughly antiseptic that the healing process proceeds uninterruptedly. (Dr. A. H. Prince, p. 137.)

DIGESTION OF RAW AND OF BOILED MILK.—At a meeting of the Academy of Natural Sciences of Philadelphia, Dr. Randolph referred to certain profound changes produced in milk by boiling. In this operation the casein is not coagulated, but there is an evolution of sulphuretted hydrogen, a diminution in the gaseous constituents of the fluid, and a change in the amount of ozone present. The most striking difference between raw and boiled milk lay in the respective responses to rennet, acids, and alkalies. At the body-temperature the firm coagulation of raw milk occurred almost immediately upon the addition of a neutral rennet solution, whereas boiled milk, under the same conditions, did not clot for a far longer period, and the coagula were not firm. On the other hand, dilute or strong acids were tenfold as active upon boiled as upon raw milk. Upon the addition of dilute alkalies to boiled milk, the rise of cream was much more rapid and complete than in raw milk under the same conditions. Artificial digestions showed that milk was more readily digested when raw than when boiled. This was further confirmed by a comparative examination and weighing (in over fifty cases, in which he was aided by Dr. Roussel) of the contents of the stomach after raw and boiled milk had been, in different individuals, undergoing actual gastric digestion. In these cases the residue found in the stomachs of those persons receiving boiled milk was greater than the similar residue found in the stomachs where raw milk had been undergoing digestion for the same length of time. (Dr. N. A. Randolph, Philadelphia Med. News, June 21, p. 725.)

Epithelioma of Anus and Lower Part of Rectum.—A few years ago, the removal of the lower part of the rectum was somewhat enthusiastically taken up by some surgeons, and many seemed to think that it was worthy of ranking as an operation of the first magnitude. It appeared to me, after observing the results of a few cases in the hands of my colleagues, that, as a means of affording any substantial relief, its scope would be very limited. Seeing the very short distance that the operator can go in the upward direction beyond the disease, and consequently the almost inevitably speedy recurrence, together with the uncontrollable contraction that must follow anything like a complete removal of the entire circumference of the gut, or anus, I suggested some time ago that it would be much better, in all cases but the very slightest, to perform a lumbar colotomy first, and then, when the patient has recovered from this, to excise the malignant growth as freely as possible. If the patient get over this, he has every chance of living a year or two in tolerable ease. On the first occasion that presented itself, I put this plan into practice, with the happiest result. The patient was under observation for two years after the second operation, and was in perfect ease and comfort, and had become quite fat and strong, though, at the time of the operation, she was much emaciated. The most striking point, to my mind, is that, though the disease had reappeared within six months after the removal, she was quite unconscious of its existence. My attention has been forcibly directed to this subject again by witnessing the daily tortures of a friend who has undergone two partial and wholly useless operations, and has now to pass his motions over a rugged raw surface with a deep gash in it, caused by one of the operations. The presence of the disease in the lymphatics of the groin now renders any attempt at removal out of the question; but the colotomy might still be done. I contend that, by adopting the course I have indicated, any patient might pass through all the phases of this horrible and fatal malady with scarcely any pain at all. The advantages of the absence of fæces from the wound, resulting from the excision, or from the recurrent growth, are too obvious to require mention here. (Mr. Jas. E. Adams, Surgeon to the London Hospital, British Med. Journal, August 16, p. 320.)

EXTRACTION OF TEETH DURING INFLAMMATION OF ALVEOLUS.—There is a popular notion, which has received some support at the hands of certain members of the profession, that extraction of a tooth must not be performed during the stage of active inflammation of the alveolus. I know of no foundation for this statement, which is entirely devoid of truth, and yet it has formed the ground for an action against an eminent member of the dental profession. Mr. Cattlin, F.R.C.S., on this question, says:—"It was the erring practice of some to wait until the inflammation subsided; but if the tooth be retained, the swelling, as a rule, rapidly extends to adjoining parts, and sometimes causes necrosis, occasionally infiltration into muscles, restricting the movements of the jaw, and often ending in abscess, which, bursting externally, permanently disfigures the face." (Mr. Christopher Heath, Surgeon to University College Hosp., Dublin Journal, August, p. 151.)

GASTRIC ULCER.—Simple ulcer of the stomach, the ulcer of J. Cruveilhier, which is often called the round ulcer, is one of the most rebellious affections to therapeutic measures. Why is it that this *simple* ulcer, as it is called, persists for months and years without cicatrising? What cause presides over the formation of the ulcer, and what influences preside over its development, its chronic course? If one wishes to give to these questions a truly scientific solution, he is obliged to acknowledge that there is something connected with its origin and course, which is still unknown. So far as the action of gastric juice is concerned, if it contributes to the progress and extension of the ulcer by a sort of digestion, why is this digestion limited so often, and not cause fatal perforation and destruction of the stomach. It would seem that the acid reaction of the gastric fluids has a bad effect, since so much good has been done by alkalines and Vichy water. The treatment of these ulcers is a more simple matter than the pathogenesis. The beneficial effects of strict diet have long been recognised, especially of the milk diet. But there are serious objections to the milk treatment. A person with ulcer of the stomach should take, if put on the milk diet exclusively, three or four quarts of milk every day. This enormous quantity may be well tolerated, and the gastric pains, the vomiting, and hemorrhages may cease. But one cannot with impunity introduce into a sound stomach, much less into one in bad condition, four quarts of liquid a day, without causing dilatation of the stomach. Without doubt, this can be in a manner obviated if the patients be not allowed to take much milk at a time. But the morbid state and atony of the stomach make digestion more slow and difficult. If to this we add the fact this dilatation of the stomach may cause hemorrhage and perforation of the ulcers, it is easily seen that the milk diet may be a source of great danger. For a long time M. Debove has paid special attention to means for reducing the quantity of milk ingested. For this purpose he has used concentrated milk and powders of milk, representing, in small volume, considerable quantities of milk. But these have not the nutritive value which is found in meat powders. Bouchard has for a long time recommended a dry diet for dilatation of the stomach, and as Debove has also seen, the dilatation disappears under the influence of this regime alone, so that it cannot be due to the ulcer. The dry diet of M. Bouchard consists in the administration of food very finely divided, or very divisible, as powdered meat or cheese, and at the same time very nutritive. While the amount of dry food is reduced, only a minimum quantity of liquid is allowed, about a pint of water, or wine and water, in twenty-four hours. On this diet the stomach is never distended by food, and the dilatation diminishes or disappears. It is by this dry diet that M. Debove treats ulcer of the stomach; but he adds an important factor to it. Before commencing treatment he washes out the stomach, in order to clear away the mucus, and the *débris* of food which may be there. This washing is done with a rubber tube by the physician himself, as a little carelessness in its use might cause hemorrhage. M. Debove believes that if gastric digestion and the action of the gastric juice can be suspended for some time, the cure of the ulcer will be greatly favoured. By rendering the gastric juice alkaline its digestive properties are taken away, and the transformations of albuminoid substances into peptones is stopped. In this manner the matters undigested by the stomach pass into the intestines with an alkaline reaction very favourable to intestinal digestion. Debove can make a patient take ʒ vij of bicarbonate of soda, in three doses, in twenty-four hours. He has shown, by his washings of the stomach, that under the influence of this treatment, the stomach liquids were never acid, and contained no peptones. The patients were given ʒ vjss of meat powder, and ʒ ijss of bicarbonate of soda three times a day. This mixture not being very agreeable to the taste, is introduced into the stomach through the tube. To this diet, which represents ʒ lxx of meat and ʒ vijss of bicarbonate of soda a day, is added a quart of milk, taken in small quantities during the day. The *alkaline cachexia* which Trousseau and other physicians have spoken of was seen in none of Debove's patients. This treatment has given most excellent results; results which have never been attained by any other method of treatment. (M. Debove in *Le Progres Med.*, Philadelphia Med. News, Aug. 16, p. 182.)

Gastrotomy in Malignant Disease of the Œsophagus.—The operation of gastrotomy may be said to have two objects in view:—(1) To diminish the sufferings of the patient; (2) to endeavour to prolong life. Practically, the first is more important. Those affected with malignant disease of the œsophagus, do not, as a rule, suffer materially until the growth is sufficiently advanced to cause difficulty in swallowing food. Doubtless the passage of the more solid particles of nourishment down the gullet induces more or less irritation, and a consequent increase in the rate of growth and the size of the neoplasm. Laryngeal irritation, followed by ulceration of the trachea, supervenes, and septic pneumonia generally terminates existence. By the performance of this operation early in the disease, the patient is in a condition in which operative interference is more readily borne; the food being introduced directly into the stomach, the irritation and the rate of the growth are lessened, and the symptoms generally are less severe. It is upon these facts that the utility of the operation exists. With regard to its prolongation of life, statistics do not offer much encouragement. Probably, with the growth of knowledge and increased experience, the results of this operation in cancer will soon be of a much more favourable character; and eventually it may be the recognised practice to advise the formation of a gastric fistula much earlier in the disease than is now the custom with the majority of surgeons. (Dr. Thomas F. Chavasse, Surg. Birmingham Gen. Hosp., British Med. Jour., June 7, p. 1085.)

Hemorrhoids.—*Strangulation by the Elastic Ligature.*—The strangulation of hemorrhoids is also, I think, more pleasantly and quickly effected with this ligature than by ordinary thick silk. It is a little more difficult to manipulate (see p. 3), and is most readily applied behind a strong tenaculum, which has transfixed the base of the pile. The powerful continuing contraction renders the division of the skin unnecessary, if the pain of the first few hours be well relieved by morphia; and there is much less soreness and discomfort afterwards, and less liability of the absorption of putrescent liquids.—(Mr. Knaggs, British Med. Journal, July 12, p. 60.)

Suppositories.—The following formula has been recommended for piles in an American contemporary:—℞. Iodoformi, ʒ i; balsam. Peru., ʒ ii; ol. theobromæ, ceræ alb., āā ʒ iss. Divid. in suppos. no. 12. Introduce one after each evacuation. (British Med. Journal, July 19, p. 144.)

Hernia.—*Improved Method of Adapting a Truss in all Forms of Hernia.*—The practice is like in kind to that which has been laid down for rendering an irreducible hernia reducible, but it differs in degree; for the object I have in view in these truly irreducible herniæ is, to render them as small as it is possible to get them by rest, diet, and the local application of cold. Having attained this point, I take a plaster-of-Paris "mould" of this hernia, and the parts around its neck, and from this mould make a "cast." Upon the cast I have a metal plate of tin or copper moulded, and covered with wash-leather, and when this has been efficiently made, I have a pad which accurately fits the hernia—whether umbilical, femoral, or inguinal—and this pad has only to be fixed to a spring or belt, to make the instrument complete. The pad, being a mould of the hernia, forms a most efficient protection to it; and, touching as it does every point of the protrusion, it fairly guarantees no increase in its size; for a like reason, the truss keeps its place, and is really comfortable to the wearer, since it presses equally. To illustrate these points more clearly, I have induced Mr. Krohne (Krohne and Sesemann, 8, Duke Street, Manchester Square,) to have two of the casts of the groins of two of my patients with irreducible hernia grafted on to a cast of the pelvis, etc., of a female figure, on the right side of which the hollow part made in the way described is fitted; on the left it has been removed from the spring, and so placed that you can see and examine it. In both the fit is perfect. I could give you abundant testimony of the value of these trusses, but one will suffice. It was sent me Sept. 6, 1883, by a medical friend who has had a personal experience of the instrument.

"Mrs. A. has had an irreducible umbilical hernia for many years, about the size of a closed hand. She has worn umbilical trusses, belts, and air-pads, of all kinds, but none of them gave her the necessary support, and the hernia constantly slipped out under the pad, causing much pain, and preventing her from walking. Acting on your suggestion, I kept her in bed for a few days, and, when the hernia had gone back as much as it would, I took a mould of the tumour and sent it to Krohne, who made from it a metal case, lined with wash-leather, which fits the hernia. This is attached to an ordinary umbilical belt. Mrs. A. has never before been so comfortable, is able to walk well, and she says the hernia is smaller. In another case the benefit was even greater. Mrs. F., a large flabby woman, had also an umbilical hernia. It was the largest I had ever seen, and could not be covered by both hands spread over it. The pressure of the belt had caused abrasion between the over-lapping hernia and the skin. She was confined to her room, and had not been downstairs for weeks. I kept her in bed, both to diminish the bulk of the tumour and to allow the skin to heal, and then took a mould in plaster-of-Paris, and sent it to Krohne's, as in the other case, and a moulded metal pad was returned to her. I saw her a few days ago walking. She says she is quite comfortable, and that the tumour is smaller. There is a little knack in taking this cast. I snip off all the hairs likely to be in the way, so that they should not adhere to the plaster, and oil the tumour. I send to a dentist for the plaster, as the commoner kind cracks and makes a mess." (Mr. Thomas Bryant, Surg. Guy's Hosp., British Med. Journal, Feb. 16, p. 307.)

Combined Use of Cold and Position in Strangulated Hernia.—There is nothing novel in the use of cold (in the form of baths, douches, ether sprays, etc.) in the treatment of hernia. The value of position has also long been recognised. What I wish to call attention to is, the simple combination of the two. I have recently had two cases of strangulated hernia; both were severe, and had lasted many hours. In the first, taxis, warm bath, opium, and chloroform had been tried without effect; the patient had begun to vomit. The foot of the bed was now raised high enough to rest on an ordinary chair, and an India-rubber bag full of ice was placed over the tumour. After waiting an hour, taxis was again tried, and the tumour had scarcely been grasped, when it began to yield, and the bowel was readily returned. My second patient had the misfortune to be drunk, when he ruptured himself during a wrestling match. It was not until the next morning that he discovered his condition; and even then, not knowing exactly what was amiss, he waited to try if a dose of castor oil would cure him. In this case, simple taxis having failed, I at once adopted the same measures as before, and, in about three-quarters of an hour, was able to reduce the hernia with ease. (Dr. Geo. C. Kingsbury, Blackpool, British Med. Journ., March 15, p. 508.)

Radical Cure of Hernia.—In inguinal hernia the sac is exposed and laid open, existing adhesions are freed, and the contents are returned, or in the case of omentum usually removed, as in an ordinary case of kelotomy. The entire sac is then freed from its connections and removed, care being taken to cut through the neck at its extreme limit above, to ensure which, in ruptures that have only been recently developed, it may be advisable to lay open the still existing inguinal canal. This thorough removal of the neck of the sac is a most important point in regard to possible future re-development of the hernia; recurrence being the more likely, should a depression be left at the site of the old opening as a determining starting-point. Where the sac is of very large size or of the pre-peritoneal variety, the removal of an inch or more of the neck may be advantageously substituted for complete extirpation, since the latter often involves a considerable amount of immediate and some danger of recurrent hemorrhage from the scrotal vessels, and in the case of a pre-peritoneal sac, dangerous interference with the peritoneum. When the sac is left, it should be drained from end to end to ensure its granulating up from the bottom. The sac or its neck having been removed, sutures are carried across the ring, and its edges drawn together; they should have a firm hold, but care must be taken to avoid the epigastric artery. The stitches should be of silk or stout catgut cut short, and although their permanent efficacy is doubtful, they are unquestionably of immediate use if the patient has a cough, and of ultimate benefit as a means of provoking the deposition of a sufficient amount of inflammatory products in the neighbourhood of the ring, the all-important factor in the process of cure which antiseptic precautions rather tend to prevent than to favour. In this variety also arises the question of removal of the testis under certain conditions, *e.g.*, its situation in the inguinal canal, or an extremely intimate connection between the neck of the sac and the elements of the spermatic cord. In the former case, we are mainly influenced by the state of development of the organ; if it appear atrophied and useless, it should be removed, but if it be of fair size it, together with the cord, should be freed and lowered into the scrotum, so as not to interfere with the subsequent application of a truss. In the second case, where the sac has been forced down among the elements of the cord, some of these have in recorded cases been unavoidably divided, with the result of atrophy or gangrene of the organ; hence, if the *vas deferens* or the spermatic vessels, have been accidentally cut during the operation, the testicle should be removed. In crural or obturator hernia, the surroundings of the ring preclude the use of sutures; and here we must content ourselves with the first method, the neck either being ligatured *en masse*, or, preferably, in two halves. The sac should be drawn upon so as to ensure a high division of the neck, and then the latter is transfixed with a doubly-armed aneurysm needle. The ligatures are tied on each side and the sac removed. This proceeding very materially diminishes the size of the crural opening, and yet allows temporary drainage from the peritoneal cavity, in many cases a decided advantage. The close proximity of the femoral vein has not in any recorded case given rise to trouble. (Editor of Medical Times, p. 311.)

Radical Cure of Hernia by Torsion of the Sac.—We hope to be able to cure hernia so absolutely, that the further use of a truss will be unnecessary; and I believe that torsion of the sac will prove to be a right step in this direction. It is probable that this addition to the operation has suggested itself to other surgeons, but hitherto I have failed to find any allusion to it in published cases. The advantages which may be claimed for this operation are these. First, a more thorough closure of that portion of the sac situated in the inguinal canal is obtained than can possibly be obtained by any simple ligature, no matter how high up it is placed. Secondly, the twisting has the effect of tightening and throwing into ridges the peritoneum for a considerable area surrounding the abdominal opening. This I believe to be a matter of extreme importance; for, as Lawrence pointed out many years ago, one of the most fertile predisposing causes of hernia is an abnormal laxity and fulness of peritoneum in the neighbourhood of the hernial opening. Thirdly, the danger of septic peritonitis is diminished; for, if by any imperfection in the dressing the wound becomes septic, it is highly improbable that inflammation would spread up the tube of peritoneum closely twisted into apposition without producing limiting adhesion. The first case upon which I operated by this method was a male. I exposed the neck by incision, and isolated the sac from the cord. This proceeding was a little tedious, as the component structures of the cord were spread out over the hernia. Separation having been completed, the sac was grasped with a clamp-forceps high up, and given six halfturns, that is, three complete revolutions. A decided resistance was now felt, and it was evident that any further torsion would be attended with risk of rupture. A ligature of carbolised gut was tightly tied round the neck, and a salmon-gut suture passed through the pillars of the ring, and also through the twisted stump, with the view of preventing untwisting. The wound was closed, a drainage-tube inserted, and gauze dressings applied. Recovery was retarded by slight suppuration about the wound and by the formation of a scrotal abscess; but in four weeks the healing was perfect, and there has not been since the slightest tendency to recurrence. (Mr. Charles B. Ball, p. 314.)

IMPACTED GALL-STONES.—*Sounding for.*—I strongly advise practitioners to make themselves perfectly sure of the obstruction being due to a gall-stone before proceeding to lay open their patient's abdomen in the sanguine expectation of finding one. Although my method of sounding for stones may not be entirely devoid of danger—for no operation on the human abdomen is, not even the simple one of tapping—it certainly has the advantage of being less rash, as well as less dangerous to life than that of cutting down with a knife, either on ducts or gall-bladders, in search for gall-stones which may have no existence. Moreover, I have already performed the operation successfully, and what has been done once may be done again. The instrument employed was a six-inch long French exploring trocar, of somewhat less diameter than an English No. 1 catheter. And I now recommend that it should be provided with a blunt-nosed steel pilot, to be introduced after the trocar has been inserted into the abdomen, and before the search for the stone is proceeded with. After the patient is put under the influence of an anæsthetic, the operation of sounding may be performed in the following wise:—1st. Push the trocar through the abdominal parietes in the direction of the common bile duct. 2nd. If the instrument impinges on no hard solid, withdraw the stilette and judge of the situation of the cannula's point by observing what kind of fluid flows from its free orifice—bile, abdominal serum, blood, or intestinal fluid. 3rd. Being satisfied that the point of the cannula occupies no dangerous position, introduce the blunt-nosed pilot, and proceed to search about in all directions for the stone. The presence of one will be readily recognised by the fact that no hard substance whatever exists in the neighbourhood of the gall-bladder and bile ducts. And a gall-stone when struck, either in the gall-bladder or ducts, gives the same characteristic sensation to the fingers as a urinary calculus. The operation of sounding for gall-stones in the way here advocated is as safe in skilled hands as the tapping of a distended gall-bladder or ovarian cyst. A knowledge of the clinical facts adduced may possibly deter enterprising surgeons from laying open the abdomens of patients in search for gall-stones which not only possibly but even probably have no existence whatever. While the fact of being able to indubitably ascertain the existence of a gall-stone without undertaking the severe operation of incising the abdomen, on the mere chance of finding one, may induce physicians to recommend patients suffering from suspected dangerously impacted biliary concretions to submit to the operation of sounding, with the ulterior view, if a stone should be detected, of advising its extraction, seeing that in a number of instances the removal of the stone from the duct by the surgeon's knife offers the only chance of saving the patient from an untimely grave. (Dr. George Harley, p. 223.)

INTESTINAL OBSTRUCTION.—*Choice of Operation.*—There is a plentiful choice of operations. First, the abdomen may be opened in the middle line, or outside of the recti on either side, or a descending coil of bowel may be cut down on wherever it shows itself. The first is, on the whole, the operation which fulfils the indications in many circumstances, as it gives freest access to the whole cavity, and there is less risk of effusion between the muscular walls of the belly, and perhaps affords the best hopes of a rapid recovery. When laparotomy has to be performed, it is best to make at first a small opening to enable us to search for the seat of obstruction without opening the whole cavity. This must be done with the greatest gentleness; afterwards, if it is found necessary, the orifice may be enlarged. It is the empty bowel which we seek for, and this lies in the pelvis. There are other methods of operative relief which are much preferable, if they can be used. Of these, colotomy in the right or left loin would, of course, be chosen if we are so able to localise the obstruction as to be sure of opening the bowel above it. In incurable obstruction seated in the rectum and sigmoid flexure—that is, low down, left lumbar colotomy (or Callisen's operation as it should be called), is the operation which beyond doubt would be employed; but it is sometimes far from easy to be sure that by that operation we can get beyond the obstruction. That the bowel can be safely and comparatively easily reached in either loin is well established. If the obstruction lies in the descending colon, left lumbar colotomy (Amussat's operation) is that which should be preferred. Nélaton demonstrated how by a very small incision in the right groin that region could be perfectly examined, and how with little risk life could be saved in irremediable cases by opening whatever coil of the bowel (necessarily the distended part, and so above the obstruction) protruded at the wound. The success of this operation has been great, and in the cases where I have myself had recourse to it, it has been most satisfactory in saving life. No blood-vessel need be wounded. The bowel is not much handled or exposed, and an outlet is certainly secured for the imprisoned fæces. It is quite true that in most cases this is only palliative—that is, it does not remove the cause of obstruction in all cases, *but it saves life*. (Dr. G. H. B. Macleod, p. 306.)

TÆNIA SOLIUM.—*Fluid Extract of Pomegranate Root Bark.*—In cases of tænia solium male fern, when first used, brings away large quantities of the worm, but fails to expel the head. The fluid extract of pomegranate root bark acts much better, provided it is freshly prepared. The worm comes away entire, not dead, but as if intoxicated. The following are the directions: "A dose of castor oil should be taken early in the morning, and the fluid extract should then be taken in three doses, one-third of the bottle each dose, at intervals of one hour, commencing one hour after the castor oil. Each dose may be taken in a wineglassful of water." (Three-ounce bottles prepared, in vacuo, by Kemp and Co., Limited, Sassoon House, Bombay.) (Dr. Charles Forbes, Moriani, Upper Assam. Glasgow Med. Journal, July, p. 20.)

AFFECTIONS OF THE URINARY AND GENERATIVE SYSTEM.

ALBUMINURIA FROM KIDNEY DISEASE. — One of the main principles in the treatment of albuminuria is to lessen, as far as possible, the work of the kidneys, and to obtain for them physiological rest. Amongst the most efficient means for obtaining this object, are rest in bed in all acute and severe cases, the promotion of the secretions of the skin and bowels, and, above all, a scanty diet, with entire abstinence from alcoholic stimulants. An exclusive milk-diet is often most successful in the treatment of recent acute cases; the plan being to give half a pint of milk to an adult about every two hours, and to continue this diet until the urine has entirely ceased to be albuminous. It will sometimes be found that, when the albumen has disappeared while milk alone is being taken, a small meal of solid food, fish, or poultry, or mutton, excites a reappearance of albumen. The patient and the friends often look upon milk-diet as allied to starvation, and frequent requests are made for some addition to the dietary. In reply to these complaints and petitions, I am in the habit of quoting the case of a patient of my own, who in 1873, at the age of 55, being seriously ill with disease of the kidney, the result of too generous living, was placed upon an exclusive milk-diet, which he continued uninterruptedly for a period of nearly five years, never taking even a biscuit or a piece of bread, except when he was travelling, and could not obtain milk. He lived in the country, and kept his own Alderney cows, which gave milk so rich in cream, that he found it necessary to have the milk skimmed in order to obviate his tendency to obesity. His usual allowance was a gallon of skim-milk daily. During the fifth year of an exclusive milk-diet he declared that he never felt better in his life; he was cheerful, slept well, and, at the age of 60, was capable of taking a considable amount of active exercise. After this, he gradually added to his dietary by taking soup or beef-tea, and the yolk of an egg for breakfast. In 1879, he took meat once a day. Since then, he has gradually returned to ordinary diet, and takes a glass or two of sherry a day. For six or seven years, he had abstained entirely from alcoholic liquors. I last heard from him in October 1882, when he reported that, with the exception of some soreness of the tongue and lips, he was in good health. He had learnt to test his urine, and and found sometimes no albumen—never more than a trace. The chief interest of this case is the length of time during which a country gentleman, accustomed to a very generous mode of living, including a liberal allowance of wine, was contented and happy upon an exclusive milk-diet, his health meanwhile having very much improved. (Dr. George Johnson, Sen. Phys. King's Coll. Hosp. British Med. Journal, Aug. 16, p. 311.)

AMMONIACAL URINE.—*Action of Boracic Acid on the Urine.*—Prof. Rosenthal having employed boracic acid internally, with a view of checking the formation of ammoniacal urine, I determined to try it when an opportunity arose. The patient on whom I first tried it was suffering from a bad stricture of the urethra, perineal abscess, &c., and on whom perineal section had been performed two or three years ago. His urine on admission was strongly ammoniacal, with flakes of mucus in it. Boracic acid was administered in ten-grain doses every three hours a few days after admission. In about twenty-four hours the urine changed in reaction, and when passing through the fistula recently formed did not scald him nearly so much. Although the boracic acid was continued for a fortnight, no harm resulted from its continuous administration. The urine passed was kept in a vessel for several days without its undergoing decomposition; it also kept its acid reaction. In another case, after trying several remedies with slight success, and the urine being distinctly alkaline and fetid, the boracic acid in ten-grain doses twice a day was ordered. As in the previous cases, the reaction of the urine changed after the first day of taking the mixture, and has continued acid since. The symptoms, too, have been much relieved. In the night now she passes urine six times instead of thirty or even forty times, which she did before. (George Victor Perez, M.B.Lond., Hôpital Française, London. Lancet, July 19, p. 133.)

Cystitis in Females.—While in some respects the disease resembles cystitis in our own sex, it differs from it in many others. These differences refer mainly to the causation, as influenced by that important adjacent organ, the uterus, with its remarkable functions and the many diseases to which it is subject. It is divided into *acute* and *chronic*. The causes are many. Injuries from blows, falls, coitus, sudden displacement of the uterus, fracture of pelvic bones, pressure of the child's head during labour, over distension of the organ after labour or under other circumstances, rough catheterisation or frequently repeated gentle use of the catheter, introduction of foreign bodies as practised by masturbating and hysterical women, abnormal urine, and extension of inflammation from adjacent organs, as of gonorrhœal or simple vaginitis or vulvitis, or from the peritoneal surface. Abnormal urine is most important in its effects in causing inflammation of the mucous coat of the bladder. Women often delay emptying the bladder for a long time after there is a safe amount of distension. Many cases of cystitis are thus set up in the sex. The symptoms of cystitis are well marked. Frequent and painful micturition, accompanied with tenesmus of the bladder. The pain, at first local—pelvic and perineal—radiates to the navel or the breast and loins. The urine, at first pale, of low specific gravity, and acid, becomes alkaline and turbid from blood, mucus, pus, and precipitation of phosphates. The disease is not always confined to the bladder. It may extend up the ureters to the kidneys, and so ureteritis, pyelitis, pyonephrosis and renal abscess result. In the bladder itself, a cystitis, at first merely catarrhal, may become ulcerative, or the inflammation may be diphtheritic or gangrenous. The diagnosis is usually easy, but it cannot be made from the symptom of frequent and painful micturition. The urine must contain mucus, blood or pus. The conditions with which it may be confounded are irritation of the bladder from uterine displacement; irritation or inflammation, with cicatrization of the uterosacral ligaments, other forms of pelvic peritonitis, fissure at the neck of the bladder, urethritis, and stone in the bladder. The treatment, being suitable, ought to be early and prompt, to prevent the disease becoming chronic. When this stage has been reached, it will require the exercise of much of your own patience, as well as that of the sufferer. In the acute stages, keep her at rest in bed, keep the skin acting, and also the bowels, by the use of saline laxatives or mineral waters, aided by a diet of large quantities of skim-milk, diluted, in cases where the urine is very acid, with some natural alkaline water, as Vichy or Apollinaris. Linseed tea and the decoction of triticum ripens in large quantities act as diluents to the urine, and perhaps as something more, especially in the case of the latter. A good prescription in the early stages is a combination of citrate or bicarbonate of potash with infusion of buchu. To relieve the severe pain and distressing tenesmus, you will be obliged to give sedatives and narcotics, but I must caution you to withhold the most powerful of these, the opiates, as long as possible. They undoubtedly relieve pain, but they also derange digestion and act injuriously in other ways. By mouth, the Dover's powder is the least injurious. The rectal suppository is probably the most efficacious form for the administration of morphia or other remedies. Other remedies are, however, to be first tried. Camphor is useful. The bromide of potassium sometimes acts best. It must be given in full doses—twenty grains every four hours. Skene speaks well of hydrobromic acid. It may be given in doses of two to four fluid-drachms of the dilute acid, well diluted with water. Marked alkalinity of the urine furnishes an indication not very easily met. The only acid useful for this purpose is the benzoic; the dose is 10 grains. A small dose, say 5 grains, of borax should be added to render the benzoic acid soluble. The combined dose may be given in infusion of buchu. In the later stages of this, as of other mucous inflammations, balsamic remedies sometimes do good. Balsam of Peru and of Copaiba, and oil of turpentine, are the most useful. In cases where there is markedly fœtid urine, salicylate of soda has been highly commended. But the time soon comes, in cases at all severe, at which local applications to the vesical mucous membrane must be used, if we are to do the best for our patients. The simple washing out of the bladder is often of the greatest value; but the method of this simple operation is of the utmost consequence. If done carefully, so that the coats of the bladder suffer no mechanical violence, much good may be effected; otherwise it may be most injurious. Gravity is the best injecting force. It is even, not jerky, and may be as gentle as desired, according to the height of the funnel. The patient being placed on her back, with the knees drawn up, the catheter is inserted, and without removing it, the bladder may thus be thoroughly washed out, and the cleansing fluid having been allowed to flow out, the medicated solution is run in. To avoid irritation from over-distension, no more than, at most, two fluid ounces ought to be injected at once. As to the solutions you are to use: For mere washing-out purposes, solutions of common salt or of potassium chlorate are best—ʒ i to the pint. These solutions are less irritating than plain water. Carbolic acid, 1 to 60, is also valuable. Then there are various astringents which sometimes are beneficial. Such are acetate of lead, sulphate of zinc, and tannic acid, one or two grs. to the ounce. Of this class of remedies I have reserved for last that which, in my opinion, is the most valuable—the nitrate of silver. You will find, by most writers, solutions of 1 to 2 grs. to the ounce recommended. This is far less valuable than a much stronger solution, 30 or 40 grs. to the ounce, of which I have had some recent very satisfactory experience. Such a solution causes severe pain and vesical tenesmus for a few minutes, and it is well to be prepared with your hypodermic syringe when administering it, which usually must be at the patient's own home. Morphia has been injected to relieve severe pain. Solutions of 1 to 2 grs. to the ounce may be employed. The value of rest, so well recognised in the treatment of surgical cases, and of medical cases, too, is no less in inflammations of the bladder than other inflammations. (Dr. William Gardner, Montreal, p. 352.)

DIABETES. — *Skin Affections connected with Diabetes.*—Various forms of cutaneous disease are of frequent occurrence in diabetic subjects. These affections are partly functional and partly nutritive in their nature, and generally of an inflammatory character. *Pruritus cutaneus*, as a pure neuralgia, is not a rare concomitant of diabetes, under the form either of pruritus universalis, or, in females, of pruritus vulvæ. It is a most distressing complaint, sometimes rendering the patient desperate, or even impelling him to suicide. The itching comes on in paroxysms which occur several times a day, and sometimes last for hours, so that the patient is soon brought very low through want of sleep. It may accompany other diseases besides diabetes, but Hebra long ago assigned the latter as one of its causes, and his followers have made it a rule to examine the urine for sugar in every case of pruritus cutaneus. By applying this test I have often succeeded in ascertaining the existence of diabetes while the patient was still unsuspicious of his disease. Like pruritus cutaneus in general, diabetic pruritus occasions no changes in the general integument other than those which are produced directly by the scratching. *Urticaria chronica* is another diabetic skin disease which I have repeatedly encountered. It consists of an eruption of small pimples which are subsequently lacerated by hard scratching and end in suppurating excoriations and pustules. I have never observed it except in reduced and debilitated patients, whose low condition, however, was not caused by the diabetes, but had existed in the earliest stages of that complaint; and before its symptoms had become pronounced. In these cases, therefore, the emaciation, etc., must be regarded as resulting from the same obscure influences in which the diabetes chiefly originated. I have often observed this papulous eruption to become localised around the follicles, leading to their inflammation. *The truly inflammatory dermatoses* constitute a very frequently occurring form. First among them are certain inflammations which have really nothing to do with the co-existing blood-dyscrasia, but arise from frequent moistening of the skin by the diabetic urine, with its tendency to fermentation favouring the production of fungoid elements, and its directly irritating effects. These are due to *Eczema* of various degrees, which must not be confounded with the effects of scratching in cases of pruritus cutaneus. Owing to its peculiar cause (the wetting of the skin by the diabetic urine), this kind of eczema is confined to the genitals and their neighbourhood. In men, it appears only on the prepuce, and is accompanied by balanitis. Hence, an attentive observer will be led to think of diabetes, when confronted by an obstinate balanitis associated with eczema of a relaxed foreskin, and diffusing a peculiar insipid, sweetish odour. This eczema occurs more frequently, more severely, and to a greater extent, on the female parts. The labia majora, genito-femoral sulci, and inner surfaces of the thighs then appear uniformly red, densely infiltrated, and generally moistened by sweat and urine, though rarely exuding of themselves. The affection is worse in corpulent persons. Polyuria and hyperidrosis of course favour the production of melituric eczema, or, as the French term it, "eczème glycosurique." (Professor Kaposi, Glasgow Med. Journal, Sept., p. 227.)

Habitual Catheterism.—When a patient whose vesical functions have been long impaired, requires artificial relief, the best chance of saving him is to enjoin at once the recumbent position in a warm and equable temperature, usually in his bedroom, in order that the skin may act freely, and that no locomotion may be possible. The catheter should be used skilfully and with great gentleness; not at first emptying the bladder completely, but always removing the instrument when pain is felt, as it often is before that condition is reached; and it must be applied again as soon as relief is manifestly required. I can scarcely over-estimate the value of these precautions, nor advise too strongly the abstinence from movement and exposure of all kinds for a period of a few weeks in these particular cases. We may thus sometimes succeed in prolonging life, even at a very advanced term, and at the same time avoid the groundless but injurious opposition which is often manifested, as we have seen, to the use of the catheter; the want of which at an early period in the patient's history, and not the late recourse to it, has been the real cause of death in almost every one of the fatal cases described. (Sir Henry Thompson, p. 335.)

HYDROCELE.—An able article in the Philadelphia Medical News for May 3rd, in which a review is given of the various modes of treating hydrocele which have been adopted of late years, and proof adduced that antiseptic incision, so frequently resorted to in Germany, is by no means the safe and radical cure which it has been asserted to be, is terminated by the following general statement:—"An analysis of the facts contained in the preceding paragraphs warrants the conclusion that antiseptic incision of the sac is too severe for ordinary cases, and that it should be reserved for those in which the vaginal tunic is much thickened, and for examples of recurrence after the employment of simpler methods. Although the injection of from 30 to 60 grains of liquified carbolic acid, as a curative measure, has not been as yet sufficiently tested, we think that we are justified in predicting that it will prove to be the simplest, safest, and least inconvenient of all the measures heretofore employed for the cure of the very common affection under consideration." (Medical Times, July 19, p. 95.)

INCONTINENCE OF URINE IN CHILDREN.—This condition, though extremely common, has had but little attention paid to it in medical writings. Dr. Adams, in a paper on the subject, points out that is invariably due to some pathological state, and deprecates very warmly the cruelty and inutility of punishing children for an act which they cannot avoid, and argues that by careful study each case may be referred to the cause which underlies it, and that this cause can generally be removed. He divides the disorder into three classes—1, there is a constant dribbling day and night; 2, the incontinence is intermittent, but occurs by day as well as by night: 3, the commonest, the incontinence occurs only at night. This last variety is analogous to nocturnal emissions in the adult, and is referred to the same causes. One of the commonest causes of the incontinence is phymosis, with a collection of irritating smegma in the sulcus behind the glans. These cases are cured by circumcision. Other cases are due to the presence of a stone in the bladder, and must be treated by lithotomy. In these the symptoms are those mentioned in class 1, mainly a constant dribbling. The commonest cause of all is an irritability and spasm of the muscular walls of the bladder. The drug found of most service in such cases is belladonna, the dose being increased day by day until improvement results, or its physiological effects are obtained. A course of from three to four weeks is generally sufficient to effect a cure. (Dr. Adams, American Journal of Obstetrics, June, 1884.)

STONE IN THE BLADDER.—*Supra-pubic Lithotomy.*—There is unquestionably a growing expression of dissatisfaction among surgeons, especially abroad, with the lateral operation for stones of unusually large size. I have for some time fully shared in that feeling. No incisions can be made in the region which belongs to that operation through which a calculus of three ounces or more can be extracted. Laceration, either avowedly made by instruments, or but half concealed under the name of gradual distension, invariably takes place, and that affecting very important structures, often to a large extent. Hence it is that the suprapubic operation has always invited consideration when the stone is exceptionally large; but the conditions sometimes met with, especially in corpulent subjects, have often presented peculiar difficulties and dangers, which indicated that, if Scylla has been avoided above, Charybdis appears to be equally dangerous below. A modification of the operation, however, has recently taken place—if not originated, at least first executed, by Prof. Peterson, of Kiel, and described by him in 1880, which gives a new and improved position to the high operation. The improvement suggested consists in ensuring, to a degree not before attained, the raising of the bladder above the pubic symphysis. and the steadying it in that position during the operation. These objects are thus attained. The patient, lying on his back, and, under the influence of an anæsthetic, the bladder is first distended with a weak solution of boracic acid, in quantity from ten to twelve ounces if possible, which must depend on the condition of the organ. The penis is then firmly tied; nothing is better than an india-rubber tube for the purpose. Then a pear-shaped bag of india-rubber, tolerably stout, so as to retain that form, and capable of holding at least sixteen ounces of fluid, is folded longitudinally and introduced into the rectum. By the tube which forms its apex, and is supplied with a stopcock, water is forced in so as fully to distend the bag *in situ.* The outline of the bladder will now be traced above the pubic symphysis. The usual vertical incision is made, and dissection carried down to the bladder, with the usual precautions with which we are familiar. The ease and the certainty, however, which are ensured by the firm position of the bladder on this system render it much superior to the old one. I have operated by the high operation twice only, and that before the introduction of the new method. Since that time I have met with no case which I have not been able to deal with satisfactorily by lithotrity at a single sitting, of which several examples are placed before you—the calculi weighing from one to nearly three ounces. The next case which offers for which the knife is required, I shall almost certainly submit to the high operation, with Petersen's modification. And the only reason why I have not yet performed it is, that I have easily and successfully employed lithotrity in cases precisely similar to those for which the French surgeons are at present adopting Petersen's procedure. (Sir Henry Thompson, British Med. Journal, July 19, p. 121.)

Stone in the Female Bladder.—There are two methods of removing a stone from the female bladder: through the urethra, or through an opening made in the base of the bladder, from the vagina, Many modern surgeons prefer the method by incision—Marion Sims and Emmet have both recommended it. The success that has in modern times attended operations for vesico-vaginal fistula has had much influence in deciding surgeons to adopt this method, along with the apprehension of incontinence of urine as a consequence of dilatation of the urethra. Two forms of lithotomy have been recommended: 1st, through the vesico-vaginal septum; 2nd, through the urethra, laying it open for about 1½ inches behind the meatus, and running the incision, if the size of the stone require it, into the bladder. The first is certainly the better of these operations. The sphincter should never be touched if it can by any possibility be avoided. Dilatation of the urethra is the oldest method of removing calculi from the female bladder. It is objected to because of the risk of incontinence of urine, but as practised of late the risk of this is really very little. I have dilated the urethra very frequently, and am not at all sure that in any case permanent incontinence followed in consequence. All modern surgeons who operate by the urethra prefer rapid dilatation without incision. This may be done with Weiss' instrument or with the finger, the patient being under the influence of an anæsthetic. Weiss' instrument may be passed into the bladder and dilated rapidly, but the edges of the arms are liable, when expanded, to cut the mucous membrane. Dilatation with the finger, as recommended by Mr. Christopher Heath, has always appeared to me a safer and better operation. The patient, being brought under the influence of an anæsthetic, is placed in the lithotomy position, and the hands and feet tied together. Then, according to Mr. Heath, a director is passed into the bladder. I prefer a probe, believing the edges of a grooved director are liable to cut the mucous membrane. The finger is then gradually passed into the bladder by a semi-rotatory motion, the probe or director being used as a guide, so as to avoid making a false passage. A large-sized bougie may be passed first, then the little finger, and afterwards the index finger. A few minutes will suffice to do this. The size and character of the stone may now be ascertained. If it be not very large, the lithotomy forceps may be passed in, the stone seized, and withdrawn, its position having been fixed by the finger, so that it could be seized in its shortest diameter. (Dr. G. H. Kidd, p. 351.)

STRICTURE OF THE URETHRA.—*Internal Urethrotomy.*—In operating for stricture I have during the last twenty-five years used only a little blade with a long handle, and have always commenced by placing that blade on the further side of the stricture, and made the incision in a direction towards me—that is, from behind forwards, cutting just so much in length and in depth as the obstruction perceived at the moment appears to demand. Now, in order to place a small blade beyond or on the bladder side of a stricture, a certain amount of space in the urethra is required. In the case supposed (where there are two chief points requiring incision, besides the orifice), in which the deeper stricture of the two admits only a bougie No. 2 in size, there is not room for a sufficiently strong instrument containing the blade to be so placed. But a little dilatation will enable it to pass; the calibre of No. 5, English, suffices for our purpose. Hence in such a case I simply tie in a gum catheter (No. 1 is ample for the purpose), and retain it there two or at most four days. By that time, without changing the catheter for a larger one, or only once, the necessary enlargement of calibre is accomplished. The urethrotome which I employ is made on the principle of one used many years ago by Civiale, but in a manner differing widely from his, and modified in one or two points by myself. The bulbous end has a mean diameter of No. 5, the stem is about two and a half or three inches. The patient being under the influence of an anæsthetic, the little catheter which has been tied in is withdrawn, and the urethrotome is first introduced as far as to the deep-seated stricture, through which the terminal bulb is then insinuated. It must now be passed fully half or three-quarters of an inch further in—that is, beyond the stricture, and the blade being exposed in a direction towards the floor, is pressed firmly thereon, and drawn forward, until all resistance, sometimes considerable, is completely overcome. A touch on the button near the handle sheathes the blade, and the outward movement proceeds until the site of the second stricture is reached, when another incision is made in the same manner as before. The urethrotome is then withdrawn, and the meatus freely divided by a scalpel or a short urethrotome. I next take a blunt metal bougie or dilator, No. 15 or No. 16, English size, and ascertain if it will pass without obstruction into the bladder. It generally does so at once; if, however, its progress is arrested at any point, the situation of this is carefully noted, when I withdraw the dilator, reintroduce the original urethrotome, and divide the opposing tissue. But this, as I before said, is seldom necessary. I may add that I am very rarely satisfied with anything less than the free and easy passage after the operation of a metallic sound, No. 16 in size, and in some cases No. 17 or even No. 18 will pass. A gum elastic catheter, No. 12 or No. 13, is then tied in, and should remain always forty-eight hours, with an extra twenty-four hours or forty-eight hours if the incisions have been deeper than usual, or if hemorrhage is free or continuous, the latter being a very exceptional occurrence. It is sometimes objected that if a small instrument can be easily passed through the stricture, and if this may be easily dilated so as to admit a urethrotome as large as No. 5, why should any cutting operation be performed? The reply need only be brief: the object of division is to remedy the tendency to recontract, which certain strictures exhibit, and which almost all do when they have continued several years. In other words, it is marked contractility in a stricture, and not mere narrowness, which renders operation by incision desirable. I have a strong conviction that internal urethrotomy completely performed should be resorted to as the best and safest treatment of stricture, as soon as the easy use of the bougie fails to maintain the urethra patent, or to allay signs of irritation in the bladder arising from obstructed urethra. It is the best means not only for relieving urethral obstruction and its painful symptoms, but for ensuring the future sound condition of the organs which lie behind it. (Sir Henry Thompson, p. 327.)

Many methods have been, and are still, employed; the most important of these are four in number, namely, dilatation, rupture, external and internal urethrotomy. With regard to dilatation, either gradual or continuous, it is, fo course, the simplest and the safest method, and it should always be first tried; but it is often found inefficacious for old standing indurated strictures, for those which are characterised by resiliency, and for strictures of traumatic origin. The second method, rupture or divulsion of the stricture, is open to many objections. With the ordinary instrument, the stricture cannot be lacerated or split without the risk of tearing at the same time the healthy portion of the urethra. Internal urethrotomy should be performed when the method by dilatation is impracticable; and also when retention recurs in spite of dilatation. Internal urethrotomy can be performed in two ways; that is to say, the stricture can be incised from behind forwards, or from before, in a backward direction, towards the bladder. Each plan has its advocates, and it must be admitted that extremely good results have been attained by both methods. Still, as I shall presently attempt to show, the division of the stricture from before backwards is, for several reasons, to be preferred to the other plan. The instrument consists of a grooved staff, which is introduced into the bladder. A triangular blade, with a stilet attached, is made to slide along the groove; and the blade is contained in a double sheath, from which it is protruded when the stricture is reached. Before making the incision, it is of great importance to be quite certain that the instrument is really in the bladder; for, in the absence of such proof, a false passage might be divided instead of the stricture. After this instrument has been passed, the stilet is withdrawn, and urine will then escape if the bladder have been reached. A fine flexible guiding bougie, equal in size to No. 4 or 5 F., is passed into the bladder. The staff or sheath of the urethrotome is then screwed on to the guide, passed through the stricture into the bladder, and held in position by an assistant. The operator, with his left hand seizes the penis just behind the glans and draws it forwards; with his right hand he pushes the stem of the sheathed knife down the urethra until the obstruction is reached; the knife is then protruded, and all resisting tissue in front of it is divided. The incision is thus made in the roof of the urethra. The knife is then withdrawn into its sheath, which is pushed along the urethra in order to ascertain that the division has been complete. If it be so, the instrument is immediately withdrawn. A full-sized silver catheter is then passed; the bladder is emptied, and the catheter is at once withdrawn. It occasionally happens that some difficulty is experienced in the introduction of the catheter after the operation. In some cases this is due to the staff having been held too far out by the assistant, so that the stricture is not completely divided. But this difficulty will not be experienced if the sheath be found to pass freely through the stricture after division. If it meet with an obstruction, the incision must be repeated. The passage of a full-sized silver catheter suffices to prove that the calibre of the urethra has been restored to its normal dimensions. Immediately after the operation, the patient, of course, remains in bed. The bougie is passed every three or four days, and, at the end of ten or fourteen days, the patient is taught how to use the instrument himself. I believe that a permanent and radical cure will result, provided that the stricture have been sufficiently divided to allow the introduction of a full-sized instrument, and the patient has learnt the art of passing the bougie himself. Whenever circumstances permit, the surgeon should pass a steel instrument from time to time. (Mr. Walter Coulson, p. 330.)

VARICOCELE.—Relating two cases of varicocele which occurred at his Clinic at the Roosevelt Hospital, New York, Dr. Sands describes the following operation which he has performed in many cases, as both simple in execution, and very satisfactory in its results. "It aims to obstruct the distended veins by a ligature of catgut applied subcutaneously. It is made to surround the veins by first transfixing the scrotum with a needle, and carrying the thread between the vas deferens and the veins: the needle having been passed through the scrotum, carrying the the thread with it, is then passed in the opposite direction, from behind forward, entering and emerging through the same cutaneous punctures, but, instead of passing between the vas deferens and the veins in returning from behind forward, it is made to pass on the opposite side of the veins, so that when the ligature is tightened the veins are firmly constricted. The ligature and dressing being antiseptic, no suppuration follows. It is necessary to be sure not to include the vas deferens, as its functions may be destroyed. The operation itself is not very painful, but severe pain, which must be allayed by opium, usually follows it. I am not accustomed to administer ether before the operation." (Dr. Sands, Medical Times, July 19, p. 95.)

Use of a Truss in Varicocele.—Dr. Clark, in "Notes of Practice" (New York Med. Journal), says books and teachers of surgery constantly, or customarily, warn us not to mistake a varicocele for a hernia, and aggravate it by the employment of a truss. Now the fact is, that the best of all treatment for this wearing and wearying affection is a weakish truss. It has never failed in my hands; and I have used it scores of times, not only entirely or greatly to relieve the sufferer, but, by continued application, to effect a permanent cure, save in very aggravated cases. The theory of its operation is, that pressing upon the spermatic veins, the pad takes the place of the deficient valves, supporting the super-incumbent column of blood which their defection has let weigh down upon the sensitive parts below. This particular of practice is the more important, because the ailment is one that makes a man "feel bad all over," and argues to the mind of the patient, and not seldom of his surgeon, a variety of diseases that have no existence. (Dr. C. P. Clark, Glasgow Med. Journal, Sept. p. 234.)

Vesical Tumours, Chronic Prostatic and Bladder Diseases.—Sir Henry Thompson proposes, in these cases, to make a small vertical incision in the perineal raphé, above the anus, into the membranous part of the urethra, sufficient to admit the finger to pass through to the neck of the bladder; and then to insert a large soft tube just within the bladder, retaining the tube for the channel for as long as may be desirable. The suggestion is so simple and easy of execution, that one wonders it has not been thought of before. It supplies a key to the relief of many of these intractable affections, and appears in many cases to enable the interior of the bladder to be readily explored, and to offer facilities for the removal of growths by direct operative interference. (Mr. S. Knaggs, British Med. Journal, July 12, p. 60.)

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES OF BONES, JOINTS, ETC.

Amputation at the Hip.—*When is Amputation at the Hip-joint justifiable?*—The important point is to recognise, as early as possible, when a case ceases to be amenable to other treatment, and to amputate before the patient is reduced to the verge of exhaustion. I hold that we should amputate when there is acute neurosis of the head and any considerable portion of the shaft of the femur; when there is extensive disease of the head of the femur, and also of the pelvis; when there is old-standing hip-disease, with great exhaustion from long continued discharge; when excision has been done, and has failed; and, lastly, when there is malignant disease of the femur low down. Amputation after excision should, I think, become an infrequent occurrence; and, if the above indications for amputation be accepted, it would. In my opinion, for success, few operations require a more careful selection of cases; and that extensive pelvic disease, or much general exhaustion, should be looked upon as distinct contra-indications. How is it that amputation may succeed in cases where excision would fail? When the femur and pelvis are both much diseased, amputation removes something like half the disease—perhaps more. It avoids the risk of pus collecting in pockets, and infiltrating the muscular planes. The after-treatment is much less painful, and it directs a larger blood-supply, and consequently, a greater power of overcoming disease, to the pelvis and its surroundings. (Dr. Roderick Maclaren, Sen. Sur. Cumberland Infirmary, British Med. Journal, June 7, p. 1081.)

BOROGLYCERIDE AS AN ANTISEPTIC IN SURGERY. — Boroglyceride is made by saturating hot glycerine with boracic acid. Mr. Barwell operates in the open, without spray, previously cleansing the hands, instruments, and patient's skin with carbolic acid. "The operation completed, the wound is thoroughly mopped and sponged with a five per cent. solution of boroglyceride in water (that is, one ounce to the pint); or, in case of a cup-shaped wound, I fill it with the solution." All is then covered with eight or ten layers of lint soaked in the same solution, and covered with mackintosh. My personal experience of its use in surgery has been highly favourable. In one case of very severe cystitis, it acted like magic when injected into the bladder of a woman who was suffering from that disease, after a bad labour, followed by retention of urine. The patient in question was in great agony. Although tormented by a constant desire to micturate, she was unable to pass any urine whatever, and, on my passing the catheter as usual, I found the urine to be like bird-lime; so thick, indeed, was it, that I had to fit a syringe to the gum-catheter to suck some of it out of the bladder. After one injection of boroglyceride in warm water, the patient was very much relieved, and, with four or five of them, she was cured. When I proceeded to draw off the urine some four hours after the first injection had been made, it flowed freely through the catheter, and was completely altered in character. It is evidently an antiseptic preparation of great value. (Mr. H. A. Latimer, Surg. Swansea Hospital, British Med. Journal, Sept. 27, p. 644.)

DISEASES OF THE JOINTS.—*Use of the Actual Cautery.*—On the recent occasion of a patient being brought into the operating theatre of King's College Hospital for the purpose of undergoing treatment by the actual cautery for disease of the knee joint, Mr. Henry Smith made some remarks on the employment of this agent. He stated that, whilst in former times the actual cautery had been employed to a considerable extent by surgeons, it had gradually fallen into disuse, in consequence probably of the seemingly cruel and painful nature of the operation, so graphically described by the late Sir William Fergusson in his "Practical Surgery." Since, however, the introduction of anæsthetics, by means of which this potent remedy could be applied without the horrors formerly accompanying it, the actual cautery had been resorted to without scruple, and the pupils attending his class had

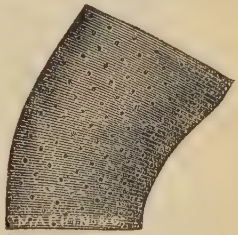
had recently several opportunities of witnessing the extraordinary benefits produced by its application. He desired to call attention to two other instances of disease of the knee-joint, occurring in females, where the effect of one application of the actual cautery had been remarkable. In one of these cases the disease had been of long standing, the joint being in a state of chronic inflammation, the chief symptoms being severe pain or any attempt to move it and some swelling. After the employment of various measures, which were of little use, the actual cautery was freely applied, with almost immediate relief and ultimate cure. In the other case, that of a woman who had been suffering from chronic inflammation of the femur, which had implicated the knee-joint, and resulted in great enlargement of the bone and anchylosis of the joint, attended with most severe pain and total loss of use of the limb, no treatment seemed to be of any avail until the cautery had been freely used over the end of the femur and knee, and those present had been able to witness the effect of this agent, which resulted in immediate and permanent relief. In another case which had been before their notice, that of a young woman with disease of the hip-joint, the symptoms denoting progressive disintegration of the articulation, the usual treatment was adopted—namely, rest, extension, and local applications,—but although the acute symptoms were relieved, intense pain persisted, especially at night. The actual cautery was applied, and the effect was to mitigate the pain within a few hours and ultimately the course of the disease was arrested. Another striking instance of the good results produced by the cautery had recently been under their notice. It was the case of a poor woman who had suffered for some time from disease of the spinal column in the dorsal region. There was some curvature, very severe pain on pressure over three of the vertebræ, and latterly the woman had lost control over the bladder. After she had been kept at rest for some little time, and the more urgent symptoms had been relieved, he applied the actual cautery freely over the diseased vertebræ, and at the same time administered mercury internally so as to produce gentle ptyalism. The effects were almost immediate: pain was relieved within a few hours, the bladder symptoms were removed, and in the course of six weeks the woman left the hospital convalescent, having been previously fitted with a Sayre's jacket. In an instance also of disease of the ankle-joint in a strumous lad, where the features of the case pointed to mischief in the bone rather than in the synovial membrane or cartilage, he was on the point of amputating the foot, but before doing so he determined to apply the cautery freely. This was done under ether, and with such good results that the patient left the hospital with a stiff ankle but a serviceable foot. Mr. Smith said he was anxious to draw their attention to one important point in connexion with this means of treatment. It should not be used in instances where acute inflammatory action existed; it would be necessary to abate the acute symptoms before using the cautery. In all the instances alluded to this had been done, and the actual cautery was then applied; in fact, as he had often pointed out to the pupils in the wards, it was in those instances where the chronic inflammation was going on, threatening progressive disintegration of the joint structures, and especially those instances where constant pain was a notable symptom, that the actual cautery was such a powerful help to the surgeon; and he strongly advised its use in such cases before resorting to more severe proceedings. (Mr. Henry Smith, Surg. King's Coll. Hosp., Lancet, May 10, p. 838.)

Excision of Portions of Tendons of Partially Paralysed Muscles.—It may be of interest to state that, in several cases where a muscle has been quite useless from partial paralysis, and where the foot has been cold and flaccid, I have found that simple subcutaneous section of a tendon has had the effect of rapidly increasing the warmth of the foot, and of so improving the nutritive condition of the muscle. that its functions have been restored. Mr. Jessop, of Leeds, first drew my attention to the fact that tenotomy could be performed with benefit under such circumstances. When there is redundancy of tendon, excision of a portion of the tendon is doubtless the better operation. (Mr. Noble Smith, British Med. Journal, June 28, p. 1253.)

Hallux Valgus.—When the great toe turns in under the second toe it is often most inconvenient. The deformity hallux valgus is one for which it will probably be admitted a cutting operation is rarely demanded. In the first place the condition being one due in almost in every case to ill-fitting boots, which force the great toe out of the line of its metatarsal bone into strong abduction, it is possible by proper attention to the shoeing of the patient, by methodical manipulation of the faulty toe, and by placing pads between the latter and its neighbours to bring it in most cases into a fairly comfortable position once more. Still every surgeon must meet from time to time with cases of this deformity which baffle all ordinary endeavours to bring about even a tolerable state of things, and where the great toe lying crosswise, either under or over its fellow, gives rise to such inconvenience, if not actual suffering, as practically to cripple the individual so affected. Under these circumstances patients are willing to undergo any treatment in order to be relieved, and will even urge the surgeon to amputate the offending member, which is interfering with all comfort in progression. In a severe case of this kind, I performed the following simple operation with the strictest Listerian antiseptic precautions. Having first made an incision through the soft parts about an inch long, on the inner aspect of the metatarsal bone, above its head, I cut out with a chisel a small wedge-shaped piece of bone from the shaft just above the head, the base of the wedge being on the inner surface of the bone, and the apex at a point nearly through to the other side. Then, by forcibly adducting the great toe, I snapped the uncut remainder of the matatarsal bone, and brought the whole member into a straight line. In this position it was easily retained by a narrow splint along the inner border of the foot. The wound was dressed antiseptically, and the patient was allowed to go home at once. But little remains to be said about the case. The wound was left undisturbed for ten days, and was then found practically healed and without suppuration. The splint was, however, left on for a few days longer, after which, as the bone had united in its now straight position, the patient was allowed to return to work, which he was soon engaged in as actively as ever. I have seen him several times since at intervals (yesterday, Feb. 18th, 1884, for the last time—*i.e.*, over two years after operation), and the toe is almost quite straight, although a little bent by a bad-fitting boot since worn. He is quite relieved of all the troubles incidental to this deformity. (Mr. Arthur E. Barker, Asst.-Surg. University College Hospital, Lancet, April 12, p. 655.)

IODOFORM INTOXICATION.—The ordinary method of using it is to shake it freely over the wounded surface, and to fill every cavity or offset from the wound with it; then to apply dressings of either iodoform gauze or boric cotton. Prof. Tripier recommends it to be applied in a more guarded manner than that by which so many unfortunate results have been caused in Germany. He always irrigates a wound with carbolic solution; and when there is so great a loss of substance that the wound-edges cannot be brought into contact, he lightly dusts the raw surface with iodoform. covering the cavity with Lister's gauze. When changing dressings he takes care not to disturb the previously applied iodoform, but after gentle washing he adds just enough of fresh iodoform to re-cover any exposed surface in the wound. This combined form of dressing he believes to be particularly suitable after operations about the natural orifices, in cases of contused or lacerated wounds of the hand, and where caseous glands have been cleared out with a sharp spoon. Tripier also favours the application of Moleschott's collodion (consisting of iodoform 1 part: collodion 15 parts) for incised wounds about the face. I think many surgeons in this country have had an experience as extensive and satisfactory of iodoform dressings as has been that of Prof. Tripier. The advantages which may fairly be claimed for iodoform are—that it helps to allay painful sensibility, and serves to diminish the quantity and alter the character of discharge (removing fœtor, and causing a purulent secretion to assume a more or less serous condition); its presence causes the subsidence of fungoid outgrowths, on the one hand, whilst, on the other, it hastens the growth of healthy granulation-tissue; and, if it be not disturbed. it is apt, with serous discharge, to form such a protective covering for the wound that healing, as under a scab, is likely to occur. (Mr. P. J. Hayes, p. 298.)

Perforated India-Rubber Knee-Cap.—The accompanying diagram is that of a knee-cap which I have recently applied with manifest success in cases of varicosity of the veins about the knee; also those recovering from synovitis of that joint, as well as enlarged bursæ patellæ, and in one case convalescing from transverse fracture of the patella itself. It is made of the ordinary rubber in one piece to any size, and is perforated over every half-inch of its surface. The advantages claimed by this over the usual appliances of silk and cotton elastic web in ordinary use seem to me to be: 1. That it gives a better and firmer support to the affected part, thus effecting a more speedy recovery. 2. It is more durable, and therefore less costly. 3. Being perforated, and, from its structure, more elastic, it keeps the part cooler, and exerts less undue pressure upon it. They are manufactured by Mappin and Co., instrument makers, New-street, Birmingham, who can supply any size. (Mr. Hugh Thomas, Birmingham, Lancet, Aug. 30, p. 370.)



Rifle-Bullet Wounds.—*Early Treatment.*—With regard to the early treatment of rifle bullet wounds, the principles which should be followed are already being recognised in military surgery. There should be no opening up or examination with finger or probe of these wounds. Many superficial flesh-wounds and compound fractures, where the bone is near the surface, are open after being produced; but, as a rule, where the bullet traverses muscle, with or without fracture of bone, its track closes after it, and the injury becomes practically subcutaneous. When in wounds of the extremities there is injury of bone, the fracture should be fixed at the earliest opportunity. In such injuries, I believe, the importance of this principle cannot be overstated; and it would be well if not only the medical officers who treat, but the sailors and soldiers who suffer, were impressed with the same belief. The latter should be instructed, on having a leg or arm broken by a bullet, to keep it if possible completely at rest until they come under medical care. Remember what I have shown to be the character of rifle-bullet fractures. They are extensively fissured, but slightly comminuted. The fragments are held together by periosteum, a far from strong membrane, which probably at every movement, even the most gentle, is partly rent. With want of attention or recognition of this principle, it is easily seen how these fractures, through rough or careless handling, become most serious injuries, and so have acquired the bad character which they possess. These two principles I consider by far the most important in the treatment of rifle-bullet wounds, which are the immense majority of those received in modern warfare; but the kind of dressing that is first applied is not a matter of indifference, or the system of treatment which is subsequently adopted. In my opinion, all that is required of a first dressing is that it shall support and protect without irritating; and the dry absorbent pads, now gaining great favour in surgical practice, when properly applied, seem to satisfy these conditions. (Dr. Gilbert Kirker, Surgeon R.N., p. 283.)

There could be no doubt that the necessity for having the very simplest form of first dressing on the field, was unquestionable. In Afghanistan he used lint, soaked in tr. benzoin co. with the best effect. (Surgeon-Major Gribbon, p. 284.)

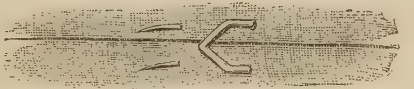
Spinal Curvature.—Proper physical training and gymnastics are the only real cure for this deformity, and, in the slighter cases, no instrumental treatment is required; but in certain cases, when the bones have become distorted, and the angles of the ribs permanently bent, no amount of voluntary power can ever restore them to position, neither will the plaster-jacket, self-suspension, nor any other treatment completely correct the deformity. In such cases, self-suspension more nearly restores the patient to a normal position than any other treatment; and the plaster-of-Paris jacket, applied as a corset, retains him in the improved position better than any other apparatus that has yet been devised, and is infinitely more comfortable to the wearer. (Dr. Sayre.)

I have learned why the jacket and jury-mast may not have been successful in some hands in England or Ireland in the cases of young children. It is entirely dependent upon your damp climate, which prevents the plaster from "setting" so soon as with us, and therefore requires some modification in its application in order to overcome this difficulty. I am very happy to have discovered this fact, as it not only explains to me why Mr. Howard Marsh stated that "the jury-mast was entirely useless in children under nine years of age, as in all the cases he had examined the cross-bar was resting on the head;" but also enables me to point out the remedy which will prevent any such mishap in future. When visiting the hospital yesterday to see the cases on whom I had made my demonstrations, I found this little girl attempting to walk; but she could not stand, as she had done the day before, and the cross-bar of the jury-mast was resting directly on her head, as described by Mr. Marsh in all the cases he had examined. In looking carefully for the cause of this mishap, I found that the plaster, still soft and yielding, had lost its grip over the crests of the ilium, and was gliding down over the pelvis. No amount of rearrangement or remodelling could make it retain its proper position, and I therefore cut the plaster in the centre and removed it entirely from the shirt. We then suspended the child again, and applied a few turns of the plaster bandage; but before putting on the jury-mast the child was laid on a bed for a short time until this foundation of the jacket was fairly "set," and she was then again suspended, and the jury-mast applied, and the child was again put in the horizontal position in a warm dry room until this morning before the head-straps were applied. You now observe that the jacket is perfectly dry and firmly set, and therefore accurately retains the jury-mast and head-support in its proper position. When the plaster has thus once "set," it will retain this form unaltered until it is broken. The child, as you now observe, can jump from the bench on which she stands, striking fairly on her heels without the slightest pain, and says she feels "quite rightly, sir." A new jacket should be applied every few months, according to the development of the child, and be worn in all cases of spondylitis as a solid jacket until consolidation has taken place, when the last jacket may be cut in the centre and worn as a corset for a few months as a precaution against relapse. From two to three years is generally required to effect a cure; but during all this time the majority of the cases are enabled to attend their school and enjoy their out-door sports, which is a matter of great importance. The corset complete weighs only 2⅛lb; and, when the edges are brought together, you observe there is a perfect model of her body in the improved position which self-suspension gave her; and consequently, when firmly laced, it must retain her in this position without any compression of the thorax or interference with the respiration. I know of no other device or instrumental support for cases of lateral curvature of which this statement can truthfully be made. (Dr. Lewis A. Sayre, New York, British Med. Journal, Aug. 16, Sept. 20, pp. 317, 556.)

SPRAINS.—*New Method of Treating.*—I have had a considerable number of sprained limbs to treat, and, after employing the usual plans of treatment, was led to adopt a new agent—clay. The clay is simply that used for making bricks, free from gravel, dried, and finely pulverised in a mortar. The powdered clay is mixed with water so as to form a thick and moist consistence. This is spread on muslin to the depth of a quarter of an inch, and applied entirely around the part. Over this is placed a rubber roller bandage, just lightly enough to keep the dressing from shifting and to retain the moisture. At the end of twenty-four or thirty-six hours the dressing must be renewed. Dr. Hewson, of Philadelphia, about ten years ago introduced earth as a means of treating fibroid tumours of the uterus, and also sprinkled burns with the dry earth, claiming that the tendency to deformity in the latter cases was lessened. However, I am not aware of sprains being previously dressed with clay, and it was thought as well to lay the efficacy of the method before the profession. (Dr. Thomas L. Shearer, p. 301.)

STRUMA.—Strumous diseases are very rarely indeed tubercular in origin. Struma is a certain habit of body, a certain faulty method of forming and nourishing its tissues, which, thus produced and sustained, are not diseased, but are apt to respond to any slight irritation by sluggish and prolonged inflammations, the immediate products of which have little or no tendency to higher development, but rather to certain forms of degeneration—suppurative, fatty, caseous, and tubercular. In certain parts of the body tubercle appears with great facility, therefore very frequently; in other parts with very great difficulty; and among these parts the synovial membrane is pre-eminent. I would not give you to understand that in joints long the subject of chronic strumous inflammation tubercle is never to be found; but when so found, it is tubercle not of synovial membrane, but of old inflammatory products. Contrast this with the mode of tuberculosis in internal organs, as, for instance, lungs; in them tubercle appears simultaneously, or almost simultaneously, with some very slight inflammatory change of tissue; it is impossible to say whether the deposit of some minute tubercular element is or is not the origin of the disease. Such a state of things is never found in a synovial membrane nor in the joint end of a bone; in those parts tubercle, if it appear at all, is a late production—the terminal, and not the initial point of a morbid process. (Mr. Richard Barwell, Surg. Charing Cross Hosp., Lancet, August 2, p. 179.)

SUTURE.—*New Form of.*—I submit to the notice of the profession a form of suture which in my opinion would be useful, and might in certain cases and in certain situations supersede with advantage the ordinary means of approximating the edges of wounds. I am not aware that such a contrivance has been used before, although the age of the thread suture and the absence of recent attempts to modify its principles of fixation would seem to indicate that it has reached the stage when modification is unnecessary and impossible. Nevertheless, the suture is objectionable in ways which will immediately suggest themselves to anyone who reflects for an instant on its application. 1. It fails to approximate the walls of a wound in a desirable manner, only too often bringing into contact the limited superficial portions of the tissues corresponding to where the threads are inserted, and leaving the deep parts unapproximated. 2. There is a circular constriction, which frequently leads to ulceration and strangulation of the tissues enclosed within it, and thus to uselessness of the suture; while this defect is not at all times caused by a too tight application, but is indirectly owing to the smallness of the body which bears the strain of the tissues. 3. The suture acts as a foreign body in the wound, and causes those conditions which are known to prevent early union.


ARNOLD & SONS LONDON.

These not being imaginary objections, but based on experience, I wish to suggest the following form of suture as fulfilling indications not met by the ordinary interrupted suture, and being at the same time easy of application. These sutures may be very readily introduced by a torsion forceps, which is made to grasp the V-shaped bend, while the fingers of the left hand approximate the edges of the wound; after which, if the wound is not thoroughly closed, the wire may be clamped at the bend and the points brought closer together, with or without being held by a thread, or a piece of cork fastened on them. A piece of folded lint may then be applied under the bend to afford support to the wound. The sutures may be introduced either in the long axis of the wound, which is preferable; or across it, when a foreign body would of course be present. These sutures may be had of various thicknesses, sizes, and curves, with lancet points. They are made of silver, with hardened points, by Messrs. Arnold, of Smithfield. (Mr. James MacMunn, late Res. Med. Officer, Great Northern Hosp., Lancet, Sept. 27, p. 544.)

Iron versus Silver Sutures.—Dr. Roberts, writing in the Polyclinic says: "What I call the 'suture folly' is the adherence of so many to the theory that silver wire only should be employed for suturing purposes. Nothing could be more fallacious. Do we use silver hare-lip or acupressure pins? Why then employ silver when iron wire is stronger and far cheaper? When large and gaping wounds require the sutures to stand much tension, silver wire must be very thick. Iron wire of much smaller diameter, and therefore much more flexible, gives an equally strong suture, and in addition to being better adapted to the purpose, is much cheaper. I recollect that, in hospital practice, nearly eight years ago, I discarded silver wire, which cost one dollar for each small coil, and bought, at a hardware store, enough iron wire, for 10 or 15 cents, to last many months. The nicest iron wire which I have seen, and which I now use for the purpose, because it is strong, very flexible, and free from elasticity, can be bought for ten cents a spool. If it become a little rusty, it can be rubbed clean in a moment." (Dr. John Roberts, Medical Times, July 19, p. 95.)

Traction Sutures.—Dr. Allis, writing in the Annals of Anatomy and Surgery, says that when a large portion of integument has been cut away—as in removal of the female breast—the healthy borders sometimes cannot be fully approximated; and even an attempt to do so is accompanied with such a degree of tension that the sutures soon cut their way out. To distribute this tension, after drying the skin thoroughly, he applies strips of adhesive plaster from the margin of the wound in the direction he wishes the sutures to hold. He then passes his needle deeply through plaster and skin. After the sutures are in position, and before tightening them, he requests an assistant to approximate the margins of the wound by pressure from his hands, while he secures them by twisting the wire. Sutures employed in this manner have a firm hold upon the plaster, exert their traction upon a large surface, are less irritating and harmful, and will continue an efficient action much longer than the ordinary integument sutures. (Dr. Allis, Medical Press, Jan. 16, p. 53.)

TALIPES CALCANEUS OF PARALYTIC ORIGIN, TREATED BY EXCISION OF A PORTION OF TENDO ACHILLIS.—Four cases have recently been under my care in the Orthopœdic Department at St. Bartholomew's Hospital. All four cases were well marked examples of paralytic talipes calcaneus. From one-half to three-quarters of an inch of the elongated tendo Achillis was excised, care being taken to interfere with the vascular supply and the surrounding connections of the tendon as little as possible. The ends of the tendon were cut obliquely, in opposite directions, so that, when brought together, they overlapped splicewise for about three-quarters of an inch, and in this position were secured by kangaroo-tail-tendon ligatures, two of which were applied on each side. The operation in each instance was done under the spray, the wound dressed with eucalyptus gauze, and the foot secured in a position of extension by accurately fitting splints. All the children were markedly improved, and two of the cases, I think, considering the paralytic nature of the disease, may be said to be completely successful. The power of flexion. as well as of extension, of the foot was regained, and the heel could be raised in walking. Not all cases that come under notice are suitable for the operation. Where the calf-muscles have undergone complete atrophy and fatty degeneration, no good can, of course, be expected; but where any muscular fibres remain intact, the shortening of the tendon, by bringing these into action, would appear to somewhat restore to the muscle its lost power. A rough estimate of the state of the muscles may be formed by the amount of wasting of the limb; but a more accurate knowledge of their condition will be gained by testing their reaction to the faradic and continuous currents. The instrumental treatment of paralytic calcaneus is so unsatisfactory, and resection of the tendon so simple, and, in suitable cases, so successful, that the operation deserves more attention than it appears to have hitherto received. (Mr. W. J. Walsham, British Med. Journal, June 14, p. 1147.)

TALIPES VARUS.—*Plaster of Paris Splints and Churchill's Fixation Apparatus.*—The value of plaster of Paris splints in some shape or form is deserving of more prominent notice. In these cases it is difficult to adapt a suitable apparatus. The usual appliances are troublesome and as a rule expensive. The smaller the foot the more unsatisfactory the apparatus, and notwithstanding all efforts, the foot will twist round to its original deformity. Mr. Churchill has simplified matters considerably by introducing an apparatus which he has kindly allowed me to describe. (See *woodcut*, p. 294.) The foot is first carefully and powerfully manipulated, the ligaments stretched, and the bones moulded as much as possible to the correct position. A circle of webbing is fixed with letter clips round the foot, a strip of thick perforated tin about one inch wide is bent at right angles, the short arm of which goes across the sole of the foot, level with the joint of great toe, and is clipped to the webbing previously applied. The long arm goes more than half way up the leg, and to the end of this arm a piece of string is attached. By pulling the string the foot is levered into a proper position, and is easily kept so by a plaster of Paris bandage applied while the extension is being kept up. The muslin clings to the jagged edges and perforations in the tin, and holds the foot with a firm grip. A flannel bandage must of course be previously applied to the foot, ankle, and leg, and the jagged perforations of the tin cling to the flannel so as to prevent rotation of the limb within the case. The child may be allowed to walk about with this encasement, after it is properly set. In this way the astragalus and os calcis will be further moulded into the proper position by the weight of the body. Should the plaster of Paris break away, a new case must be applied after carefully moulding the tarsal bones as before. (Mr. John A. Shaw, p. 292.)

WOUND DRESSING.—*Gamgee's Antiseptic Pad and Dressing.*—The new sponge and wound-pad, which has been manufactured by Messrs. Burroughes and Wellcome at the request of Mr. Sampson Gamgee, is the result of a suggestion made by Sir T. Spencer Wells. It differs from the ordinary sponge, inasmuch as it is a powerful absorbent in its dry state, and need not be previously wetted. Its absorbing power is said to be equal to fully sixteen times its own weight. It consists of concentric layers of absorbent cotton and cocoa-nut, or like fibre, within a covering of absorbent gauze. Its antisepticity is secured by placing in the centre a thin and easily friable capsule containing the antiseptic of any kind desired, eucalyptia, or thymol, carbolic acid, bichloride of mercury, etc. An antiseptic may thus be inclosed within absorbent materials, and preserved intact for weeks and months together, if necessary, until required for use. All that is required is a sharp squeeze of the sponge or pad just before using it; and by subsequent burning, all fear of sponge-infection is avoided and becomes impossible. (British Med. Journal, June 14, p. 1157.)

Wood-Wool as an Antiseptic Dressing.—Its chemical composition, and its combination with resinous matter and etheric oil, impart to this dressing powerful antiseptic properties. I believe that its use will become general, both in hospital and private practice, for two reasons. First, it is cheap; second, it is clean and is easily applied. In colliery and machinery wounds, where there is generally a great deal of suppuration, and foul discharges in the process of healing, from the great difficulty in cleansing the parts, I should say it is the material which will give most satisfaction. (Mr. T. A. Mitchell, British Med. Journal, June 28, p. 1286.)

Hartmann's Wood-Wool and Hygienic Wood-Wool Diapers.—The wood-wool prepared by Paul Hartmann, of Heidenheim, Germany, has been known for some years on the Continent as an excellent material for dressing wounds. The value of prepared wood as a dressing material was discovered by Dr. Walcher, assistant in Professor Bruns' clinic at Tübingen, and the discovery was turned to account by M. Hartmann, who succeeded in producing a soft and pliable substance to which he gave the name of sublimate wood-wool. This material has been used extensively by Professor Bruns, who employs it as a substitute for the gauze of the typical Listerian dressing. It is so flexible that it can be tightly bound on to the wound without danger, it rapidly absorbs and gives off moisture, thus fulfilling, according to Dr. Bruns, "the two great essentials of a good dressing material—that it should be dry and seldom need changing." Recently this material has been utilised for the purpose of the so-called hygienic diapers, which consist of a pad containing 90 per cent. of wood-wool mixed with 10 per cent. of cotton wool and impregnated with 0·3 per cent. of corrosive sublimate. It will be found that they absorb discharges readily, and prevent any offensive odour; but their great merit is that they can be burnt immediately after use, a custom which we venture to say will one day become universal. They will be found a great comfort by ladies suffering from excessive or offensive losses. (Medical Times, Aug. 9, p. 201.)

AFFECTIONS OF THE SKIN, ETC.

ACNE.—*Internal Remedies.*—Dr. Piffard, an American dermatologist, considers that, in the treatment of acne, internal measures are more important than external applications. For the common form *(acne vulgaris)*, he says that the sulphide of calcium, given in small doses, is the most trustworthy agent that we possess. Next in usefulness he ranks the bromide of arsenic, which should be given in doses of from the $\frac{1}{100}$ to $\frac{1}{50}$ of a grain. It is best administered in alcoholic solution, well diluted. For a local application in acute cases, he recommends an ointment of belladonna; and in subacute and chronic, green soap or some mercurial ointment. (Canada Med. and Surg. Journal, May, p. 634.)

Acne in Fibre-Dressers.—A dermatitis taking an acneform character, arising from an external irritant, is certainly uncommon. "Eczema," so called, in its various stages, is met with in many trades and occupations in all its varieties, from the "weeping vesicle" to the "leathery scaling skin"; but rashes of a tubercular form arising from external irritation of the hair-follicles have hitherto, as far as I know, been limited to those who work with tar, paraffin, benzoin, &c., or those cases where tar has been energetically used to cure some other form of skin disease, as psoriasis or chronic eczema. During last summer my attention was directed to a form of rash on the forearms and thighs of a certain class of workmen different from anything else I had ever seen in those situations. The first case met with was in a healthy-looking, intelligent man, aged twenty-four, who described himself as a fibre-dresser, at which special department of brush-making he had been employed for the last two years. His work consisted in dipping a fibre called "kitool" and cocoa-nut fibre into some special preparation of various oils, soaking it, and then tearing and pulling it out. Since he has been employed at this work he has suffered continually from a rash, which itches and is sometimes painful. His forearms were more or less covered with raised tubercles, discrete, and presenting all the stages from the "black point" of the closed sebaceous gland to the suppurating, tense, and painful nodule. There were no pustules on the backs of the hands, but the "black points" were universal, and could be extruded by pressure or picked out by a needle-point. Wherever pustules had been were well-marked scars. The hairs on the backs of the forearm were scanty, and could easily be pulled out with forceps, without any pain whatever. The same condition existed on the front of the thighs and shins, but more especially on the knees. There was no appearance of acne on the face, and only very scantily on the shoulders. Under the microscope the hairs treated with solution of potash were seen to be very swollen at their roots, with much adherent epithelium, evidently from proliferation of the lining of the hair-follicle. The man being otherwise healthy, with no appearance of struma, syphilis, congenital or acquired, or scorbutus, the rash was evidently connected with his work. On being questioned, he informed me that he continually got his trousers soaked in front in dipping the kitool, and that he worked with his coat off and his sleeves rolled up. The next question was, What was the cause of the rash—the fibre or the oil? The former, which is a kind of coarse dried grass, produces no local ill effects on those who simply sort and pick it, causing only some throat irritation from the quantity of dust arising from it; therefore the cause evidently lay in the liquid used. On procuring a sample of this I detected a smell of paraffin in it, and learnt on inquiry that it was not unusual to have this special oil mixture adulterated with this material. On visiting the place where the man worked, I found that all the men engaged in a similar occupation had acne more or less on their forearms, and that those who had been employed for some length of time were nearly absolutely hairless on those parts. Hebra says that when a rash is due to paraffin &c., it does not usually come from direct contact of the irritant with the skin, but by the person living in an atmosphere impregnated with its vapours; such, however, can hardly be the case here, for the rash is strictly localised to those parts which come in contact with, or are saturated by, the fluid, and also by the fact that it does not occur in those who only sort the fibre, though they are often at work in the same room. Again, it differs from acne caused by tar in that, Hebra says, the rash disappears on discontinuance of the irritation, leaving neither maculæ nor scars. Here the rash, though he was told it very much improved during a week's stay in the country, left most indelible marks of its former existence. Why should substances like mercury and antimony, acids, croton oil, cantharides, turpentine, and mustard applied locally produce an eczematous dermatitis, whilst paraffin causes an acne? The paraffin has apparently a very irritating effect on the hair-follicles and their adjacent sebaceous follicles, as they seem to be primarily affected; but why should not turpentine be equally so? The mildness and chronicity of the application may account for it; for it is well-known that vegetable irritants cause a more acute form of dermatitis than the mineral ones, but that does not explain why the local application of mercury should not cause an acne as well as a papular eczema. In confirmation of the irritating properties of paraffin, Dr. Longmuir pointed out that epithelioma not uncommonly occurs in those who have to handle and work with it, but he does not mention whether he has noticed acne also. The fact of both acne and cancer having been attributed to the same irritant, suggests the question, Does traumatic acne ever go on to traumatic carcinoma? (Mr. Charles Atkin, Sheffield Infirmary, Lancet, May 31, p. 978.)

Burns and Scalds.—Dupuytren's classification of burns is into six degrees of severity:—1. Only inflammation of the skin. 2. Detachment of the epidermis and formation of blebs of various sizes. 3. Destruction of the cuticle and *a portion only* of the true skin. 4. Destruction of the true skin. 5 and 6. Muscles, tendons, nerve trunks, blood-vessels, and bones are involved. The following are the requisites which Dr. Woodward lays down for a good dressing for scalds and burns. It should—1st. Be comfortable to the patient. 2nd. Diminish secretion from the affected part. 3rd. Require to be renewed only at long intervals. 4th. Promote healing. The method of dressing adopted in the Bellevue Hospital, New York, is as follows;—Supposing the burn is one of the second degree, the blebs are cut open with a scissors and evacuated, the detached epidermis being carefully cut away. Whilst this is being done, the affected member should be irrigated with some antiseptic solution. He condemns bichloride of mercury dissolved in water (1-2000) as harmful in many cases, and regards carbolic solution as dangerous in cases where the burnt surfaces are extensive and irritative in their action, causing a large secretion of serum. He recommends Tursché's antiseptic fluid; this contains five parts of boracic acid, one part of salicylic acid, and five hundred parts of water; it is not very irritant, and is perfectly effective. He regards it as the best solution for the purpose. Having thoroughly cleansed and rendered the burned region as aseptic as possible, a layer of sub-nitrate of bismuth, thick enough to thoroughly protect the part, is dusted upon it. Over this, four or five thicknesses of carbolised or bichloride gauze should be wrapped gently. Over all, some antiseptic cotton is placed in a thick layer, and bound on gently with a bandage. This dressing should remain perfectly sweet for a week or two. Should serum come through it after a day or two, more cotton and a bandage should be applied. The part is examined after a week or two, according to the size of the burn. Usually at the end of one week the burn is examined, and found healed throughout. If a change of dressing is required, it must be made under precautions similar to those observed in the first instance. In cases of the third and fourth degree of severity, after thorough cleansing of the wound from sloughs and other dead tissue, he recommends free dusting of the tissue with boracic acid crystals, or covering it with boracic ointment (ʒ j. to ℥j.) spread on antiseptic gauze. If the crystals are used, the part must be thickly covered with them. Strips of disinfected rubber tissue should then be applied over the acid, and the whole covered with cotton-wool, antiseptic gauze, and a bandage. In the case of extensive burns, where there is a large surface to be healed over, he recommends skin-grafting, the parts to be dusted with boracic crystals after the insertion of the grafts, and the dressing to be applied as just described. He has found most satisfactory results from the use of a powder composed of equal parts of subnitrate of bismuth and iodoform, instead of the boracic acid and boracic ointment. If it is a fact that the living membrane of an egg is as suitable and effective as portions of skin for grafting purposes, a powerful means for securing rapid healing, and for the prevention of those horribly disfiguring cicatrices and contractions, is placed in our hands. Those who have tried it speak favourably of it; it seems worthy of more extended trial. (Dr. J. H. Woodward, New York, Med. Press, Aug. 27, p. 178.)

Crushed Ice and Lard for Burns and Scalds.—In the Asclepiad for April, the treatment of burns and scalds by crushed ice and lard is warmly advocated. To put the method into practice, ice is well crushed, or scraped as dry as possible; then fresh lard is admixed until a broken paste is formed. The mass is then put into a thin cambric bag, laid upon the burn or scald, and replaced as required. The pain is rapidly eased, and its return is the call for the repetition of the remedy. This mode of treatment is as scientific as it is simple. It saves at once the fever incident to pain, and it leaves very little contraction of surface. (Dr. B. W. Richardson, London Med. Record, July 15.)

ECZEMA.—*Local Applications.*—In a lecture on eczema, Dr. Duhring, of Philadelphia, after dwelling on the importance of constitutional treatment in many cases, enumerates the following as the best local applications:—In the *erythematous* variety, usually met with about the face, he recommends carbolic or boracic acid, especially the former, as in this formula: Acid carb. ʒ ss, glycerinæ gtt. xv, alcohol ʒ j, aquæ ℥ iv; also one of calamine and zinc oxide: Calam. zinci oxyd. āā, glycerinæ āā ʒ ss, aquæ calcis ℥ iv; and the following Zinci sulph. pot. sulphuret āā ʒ ss, aquæ rosæ ℥ iv, twice a day for ten minutes. In the *vesicular* variety, when acute, excellent results follow the use of black wash, followed immediately by oxide of zinc ointment. This is a valuable, mildly stimulating, drying ointment, and is useful, both alone and in combination. Of the various dusting powders, the following is the best: Talci Veneti ʒ iv, zinci ox. ʒ j, amyli ʒ iii, salicylic acid gr. x or xv to the oz. of lard; and oleate of zinc 1 drachm to the oz. does well in some cases; and the above calamine lotion is also valuable. *Papular* eczema, as a rule, requires strong lotions, and that of carbolic acid is one of the best: Acid carb. ʒ iss to ʒ iii, aquæ Oj. Thymol 1 to 3 grs. to the oz. of water may be used; as also liquor picis: Picis liquidæ ʒ ij, pot. caustic ʒ j, aquæ ʒ v. This is to be diluted with water, 1 drachm to 2 or 3 oz. of water. Strong sulphur ointments are sometimes very valuable. In the *pustular* variety ointments of calomel, white precipitate and sulphur, from 1 scruple to 1 drachm to the oz. of lard, may be recommended. In the *squamous* variety, tar is the most valuable remedy, and may be used as the *huile de cade*, 1 or 2 drachms to the oz. of lard, or as tar ointment, or as liquor picis alkalinus as above. Ammoniated mercury, 15 to 60 grains to the oz. is serviceable. When large surfaces are involved, a remedy like tar should be first tried on a small patch, to determine whether it will agree. In *eczema rubrum* of the leg, the rubber bandage may be frequently used with benefit. No one remedy can be positively relied upon to effect a cure in a given case, especially where the lesions are extensive. (Dr. Duhring, Medical Times, April 26, p. 572.)

Salicylic Acid.—Lassar points out that salicylic acid is specially useful in eczema, and particularly when used as a two per cent. vaseline salve or vaseline zinc paste. In the common eczemas of the head in children, so numerous in dispensary practice, after two or three thorough cleansings, the daily application of the following salve nearly always suffices to obtain rapid and lasting results:—℞. Acid. salicylic. gr. 10; tinct. benz., ♏xx; vaseline, ℥j; M. Ft. ung. On other parts, where a soft salve which easily melts as this is not suitable, where a firm dressing or a drying effect is desired, the following paste should be rubbed on:—℞. Acid. salicylic. gr. 19; vaselini, ℥j; zinci oxidi; amyli āā ℥ss; M. Leniter terend., fiat pasta. So long as the secretion is abundant, the dressing should be daily renewed. Sometimes, when it dries hard, it tickles the skin; it should then be rendered soft by subsequent inunction with vaseline. (M. Lassar, Dublin Journal, Nov., p. 393.)

Eczema in Early Childhood.—Eczema in early childhood has hitherto generally been considered to be a manifestation of scrofula, as in many cases it undoubtedly is. Dr. Bohn, however, asserts that neither scrofula nor rickets can be considered to be the cause of the numerous cases of eczema of the head and face that occur in children during their first few years of life, especially as the great majority of these cases occur in infants not six months old. Most of these children are particularly well nourished, and appear to be otherwise in perfect health. Dr. Bohn asserts that the only general statements he can make about them are, that they are usually constipated, passing hard yellow or white stools, and that they are all too fat and have fatty livers. The treatment he recommends is based on these observations; the first step is to cure the constipation, the second to regulate the diet so that an excess of fat or fat-forming food shall be avoided, *i.e.*, the substitution of animal broths for some of the milk. The eczema should be treated locally in the usual manner. (Dr. Bohn, Medical Times, July 12, p. 57.)

EPITHELIOMA AND LUPUS.—*Oleate of Arsenic.*—The arsenicum oleate, a reddish-brown waxy substance, is a preparation which, rubbed down with lard in from five to sixty grains to the ounce, according to the effect desired, forms a most important alterative and escharotic, of use in the treatment of epithelioma, ulcerating lupus, and in old chronic ulcers. (Dr. Shoemaker, p. 382.)

ERYSIPELAS.—*Iodoform-Collodion.*—For some time I have been accustomed to use a solution of iodoform in collodion, of the strength of one ounce of iodoform to ten ounces of collodion, as an application to enlarged indurated glands in the neck and elsewhere. On one occasion while painting some enlarged and painful inguinal glands in a man, the subject of chronic eczema of the lower extremities, he called my attention to a well-marked patch of erysipelas affecting the region of the left ankle and lower part of the leg. The usual characteristic appearances were present—considerable infiltration of the cutaneous textures, redness, and heat, but no vesication; the patient complained of the burning heat rather than of actual pain. Bearing in mind Sir James Paget's experience of collodion in erysipelas (see page 335 of Clinical Lectures and Essays). I painted the surface of the inflamed skin with the iodoform-collodion which I had just been using. On my next visit, to my surprise, I found the erysipelas was better; all heat and pain had gone, and the infiltration was rapidly subsiding. The glands in the groin were also much reduced in size and less painful, and in a few days all traces of the erysipelas had disappeared. (Mr. C. Clark Burman, p. 370.)

Facial Erysipelas.—Dr. Schallenberger states that for several years he has employed a mixture of salicylic acid, one drachm, glycerine and rosewater of each half an ounce, which he applies by means of a camel's-hair pencil frequently and thoroughly to the affected parts, taking care to cover well beyond the line of demarcation. He has a record of quite a number of cases so treated, and in every instance the first or second application has been sufficient to check the spread of the disease. The only internal treatment was saline water or mixture. (Dr. Schallenberger, Philadelphia Medical News, April 5.)

IN-GROWING NAIL.—In a note to the Union Médicale, June 22, M. Monod states that during the last twenty years he has treated in-growing nail by a very simple and effectual method, which does not involve the removal of the nail. He makes a free application of nitrate of silver at the commencement of the affection, without isolating the nail. If the cauterisation is carried deeply into the diseased furrow, the patient has usually, even by the next day, derived considerable relief, and is able, even thus early, to walk in moderation with an easy shoe. Extirpation of the nail should be reserved for quite exceptional cases. (M. Monod, Medical Times, Aug. 30, p. 286.)

LUPUS VULGARIS.—*Salicylic Acid.*—I have for some time employed salicylic acid, in the form of ointment, as a remedy for eczema of the scalp, and impetigo contagiosa occurring in children, with the most satisfactory results, cases that have defied other treatment yielding rapidly to its agency, and I have been induced to make further trial of it in other skin affections. By the kindness of Mr. Rigby, surgeon to the Doncaster Infirmary, I was permitted to employ it in a very bad case of lupus exedens, which had been for some time under his care. The patient, a woman, about 25 years of age, had her face terribly disfigured, the ulceration having destroyed one *ala nasi*, the whole of the cheek and eyebrow being also involved. She had been in the hospital before, and had improved under treatment with Donovan's solution and a visit to Harrogate. But on her return, although she was kept under observation and treatment, fresh tubercles developed, and the parts that had cicatrized soon became again involved, and she was re-admitted to the institution. I first tried an ointment of 15 grains to the ounce of vaseline, which was of no use; I then increased the strength to a drachm, and then to a drachm and a half to the ounce. The ulcers soon began to heal, no fresh tubercles appeared, the cicatrices became soft, and lost their shiny, unhealthy appearance, and the skin of the face is now almost sound. She was taking a mixture containing Donovan's solution and the liquor ferri dialysati. But as this had been administered without apparent benefit before admission, I think it is fair to give the credit to the external remedy. I have not heard of salicylic acid being employed before in the treatment of this particular disorder, and its action seems very satisfactory, especially as it does not appear to cause irritation. (Dr. J. G. Marshall, House-Surg. Doncaster Infirmary, British Med. Journal, June.)

Local Application of Sulphurous Acid.—Sulphurous acid has long been recognised as a valuable disinfectant and parasiticide, and has been in frequent use for most of the local skin affections connected with the presence of living organisms. Recognising its powerfully destructive effects upon some forms of micro-organic life, it will not be difficult to conceive how its curative results may be produced in lupus vulgaris, if we assume that the bacillus associated with this disease, exerts some distinct influence in keeping alive the obstinate ulceration (perhaps by preventing the formation of healthy granulations), but is incapable of existence, growth, or activity in the presence of sulphurous acid. Besides this germ-destroying influence, sulphurous acid also exerts a powerfully stimulating action when applied to the surface of open wounds, and I have particularly noticed its excellent effects upon certain indolent ulcers, which have resisted the influence of many other modes of treatment, including carbolic acid. In fact, my experience of its use, in these particular cases, compels me to consider that it is preferable to the latter in most forms of simple ulceration. It is far less irritating, and consequently may be employed where carbolic acid would certainly do harm. Its stimulating influence may account then, to some extent, for its beneficial effect in lupus vulgaris. In gonorrhœa its effects, as an injection, are most happy, and I shall shortly publish the notes of 120 cases of this disease treated by its local employment. In the local employment of this remedial agent, it may be applied in the form of a lotion, or an oil, or in the gaseous state. The last-mentioned modification is most useful, when its application is required to parts distant from the respiratory organs, and can readily be obtained by burning sulphur in a jar or open-mouthed bottle, and allowing the rising fumes free contact with the surface to be treated; the frequency and duration of these fumigations will mainly depend upon the progress made during its employment, but, as a rule, two applications daily, each for about twenty minutes, will be found sufficient to produce the healing effect of the remedy. The lotion is best obtained by the use of the pharmacopœial preparation of the acid, either alone, or diluted to relative strengths of one in two, one in three, or one in four; the last preparation is the weakest which should be employed. It is a clean and simple mode of application. and can be applied to any part of the face without causing disagreeable effects; the great objection to its use being that it has to be constantly repeated, and evaporates much more quickly than when employed in the form of an oil. This last-named method is my favourite form of applying the remedy. It is best made by dissolving the anhydrous acid (which may be procured at all druggists in the shape of a concentrated alcoholic solution) in castor or olive oil. I may state that I consider the former to be preferred as a vehicle, as it holds the acid in more complete solution, parts with it less readily, and forms a more perfect covering to the surface of the wound. The anhydrous acid mentioned in connection with the sulphurated oil, may also be employed proportionally diluted as a lotion. (Dr. Herbert Collier, p. 375.)

PRURITUS OF WOMEN.—*Local Treatment.*—All acquainted with the incessant suffering which some women undergo from pruritus at the period of the menopause, must be very desirous of being made acquainted with a prompt remedy for so distressing an affection. Whether it arise from the presence of prurigo, urticaria, eczema, herpes, or whether it exist without any eruption at all, it is alike difficult to allay, as the great number of remedies which have been proposed testifies. Of these veratria is by far the most efficacious. When the pruritus is localised at the groins, arm-pits, walls of the abdomen, or behind the ears, gentle friction night and morning with an ointment, consisting of thirty parts of lard and a quarter of a part of veratria, usually gives relief. When the pruritus is generalised, the internal administration of the veratria is preferable. Two centigrammes should be made into ten pills with liquorice powder, of which from two to six should be taken daily, either half-an-hour before, or three hours after meals. Only one should be taken at a time, an additional one being given each successive day until the maximum of six (three milligrammes) is attained. (Dr. Chèvon, in *Le Progrès Médical*, Medical Times, April 26, p. 509.)

PSORIASIS.—*Chrysophanic Acid.*—Amongst the new remedies which have come into use, chrysophanic acid holds a conspicuous place. Its effect in curing psoriasis is undoubted; and if it be not universally employed, it is more on account of the inconveniences connected with its use than from any doubt of its real efficacy. Several ingenious methods have been lately introduced with the object of remedying these inconveniences. *Traumaticine.*—Auspitz has lately conceived the idea of using traumaticin instead of gelatine as an excipient for chrysophanic acid, traumaticin being a solution of one part of purified gutta-percha in ten parts of chloroform. This preparation adheres closely to the skin, and remains from two to three days without change. Traumaticin forms a much thinner and more delicate pellicle than either collodion or gelatine, and is more easily borne; and as applications made with the solution of the strength of ten per cent. have never provoked irritation, even when applied to considerable surfaces, either in children or in adults—the chloroform evaporating slowly and the gutta-percha becoming only gradually hard—it is easy, whilst making an application, to rub it well in upon a considerable number of patches. By means of this rubbing the scales can be removed, and the chrysophanic acid directly applied to the bare and bleeding patches. *Besnier's Method.*—M. Besnier has experimented with all these methods in the St. Louis Hospital, Paris, and gives a preference to the method of Auspitz, which, however, he has somewhat modified. After removing the scales, he rubs the patches with a common house-painter's brush, soaked in the mixture of chloroform and chrysophanic acid at fifteen per cent. The duration and energy with which the application is made should vary according to the thickness of the patches of psoriasis. The application gives rise to a slight sensation of heat and smarting; in a few seconds the chloroform has evaporated and the patch is literally infiltrated with pure chrysophanic acid, having become of the deep yellow colour of iodoform. It is only then that, with a large flat brush, the patch is covered with a layer of traumaticin, which must be thickly laid on, and which extends beyond the border of the patch. The result is said to be excellent. M. Besnier has applied this method even to parts covered with hair, and without any untoward accident, local or general. The method has been found useful chiefly in cases of moderate infiltration; but when the patch is thick, fissured, and desquamating abundantly, the effect is not so striking. In such cases he has used, instead of chrysophanic chloroform, a ten per cent. solution of pyrogallic acid in ether, which is then immediately covered with a layer of traumaticin. (Editor of British Medical Journal, p. 378.)

Arsenic and Soft Soap.—In the treatment of psoriasis, Prof. Neumann recommends arsenic, and in the form of the so-called "Asiatic Pills," which are composed thus: Arsenious acid, gramme 1.0; black pepper, grammes 5.0; acacia gum, gramme 1.5; with a sufficiency of distilled water. The ingredients must be thoroughly pulverised and mixed, and then enough gum arabic must be added to make 200 pills. Each pill contains 0·005 gramme of arsenic. These are to be taken each day at first, and gradually increased till ten or twelve are taken. The soft soap course, as an external remedy, in the form of the "Pfeuffer'schen Cyclus," is strongly recommended in cases of universal psoriasis, and is thus carried out. The patient, undressed, is laid between blankets and is rubbed twice a day for six days, and once a day for three days with the ordinary soft soap, one hundred grammes being used each time. The rubbing is conducted in such a manner that the whole of the affected skin is well rubbed each time, and, at each application, a fresh portion is rubbed with a hard brush in such a manner that the surface commences to bleed. The patient remains in woollen cloths night and day, and on no account is bathing allowed till the fourteenth day, and the longer this is delayed the more easily will the dried skin and soap be separated, and the less pain and sense of stretching will be experienced. In case the bath is taken too early, the skin will feel too short and tight, movement will be difficult or impossible, and rhagades are very likely to occur. (Professor Neumann, Vienna, British Med. Journal, July 19, p. 144.)

SCABIES.—*Sulphide of Calcium.*—In some recent text-books on therapeutics and materia medica, sulphur-ointment is recognised as the treatment for scabies. In consequence of this, I have been induced to bring the treatment of scabies before the Section, in order to give a practical hint on a line of treatment which recommends itself on the grounds of efficiency, economy, and rapidity of cure. It is not by any means a new method, but it does not appear to me to be sufficiently known or appreciated. It is the treatment by sulphide of calcium. This name is also applied to a powder, the pills of which, in small doses, are very useful in the treatment of boils. The preparation used is in a liquid form, and from its colour, is known in the army and in the Poor-law service as golden lotion. It may be made from the following formula: Flower of sulphur, 100 parts; quicklime, 200 parts; water, 1,000 parts. Boil the whole for some time, stirring occasionally until the substances become incorporated, allow the liquid to cool, and decant into hermetically sealed bottles. It should not be made in a metal vessel; and as in the process of making the smell is not agreeable, care should be taken in this respect. There is a great difference in the preparations in the market. The best preparations I have met with, I have obtained from Richardson and Son, Leicester; Clarke, Bleasdale, Bell, and Tollington, of York. The method of application is as follows: The patient is first put into a warm bath; he is then painted with a brush dipped in the solution, and placed in bed, either in blankets or in a flannel nightgown made for the purpose. After a short time, owing to the deposit of the sulphur, the patient's body is almost of the colour of a guinea. The beneficial effects are speedily manifested; the itching ceases, and, as a rule, in simple cases, after another warm bath, the patient may be discharged cured. In long standing neglected cases, the duration of treatment would be longer, as the scales and crusts produced by itching and neglect have to fall off. Scabies underlies many of the forms of skin-diseases seen in Poor-law practice, and this is a practical point to bear in mind. I have used the sulphide of calcium since 1869, when I first entered the Poor-law Medical Service. I have since treated some thousands of cases, using the sulphideal one. My experience enables me to testify the accuracy of Dr. Bourguignon's statement that it is a specific for scabies. It has the following merits: it is a clean application—different in this respect from the sulphur-ointment; it is easy of application, and will penetrate—here again it has an advantage over the sulphur-ointment; it is cheap and speedy in its action; one or two applications will, as a rule, be sufficient; it does not require the destruction of any clothing, nor the complicated process described by Dr. Liveing in Quain's Dictionary of Medicine. At the end of the short article from which I have quoted, Dr. Liveing briefly alludes to this method, and says: "This lotion is effective, but it is apt to irritate the skin, and is not so generally useful as the sulphur-ointment." In a small number of cases, the use of this remedy causes roughness of the skin. Its over-use or abuse produces troublesome irritation of the skin. This may be at once remedied; the patient should be ordered a bath of soda and water, when all ill effects will speedily disappear. The sulphur-ointment should be expunged from our text-books as an obsolete form of treatment. The sulphide of calcium should take its place. I believe it is used in the army in England and on the continent, and generally throughout the Poor-law Medical Service, so that my testimony is not singular as to its value. (Dr. Thomas M. Dolan, Med. Officer, Halifax Union Infirmary, British Med. Journal, Feb. 9, p. 260.)

SMALL-POX.—*External Application of Glycerised Iodine.*—Great advantage may be derived in very bad cases of small-pox, by painting the surface with the following mixture:—Tincture of iodine 30 parts, glycerine 60 parts, and iodide of potassium $\frac{1}{4}$ part. The application is not unpleasant to the patient, and may be made from the fifth or sixth day of the eruption to the eleventh or twelfth. During this period, it is repeated four times daily, and powerfully contributes to the absorption of pus, and the desiccation of the pustules, after which it is discontinued. (Dr. Bartholow, Medical Times, July 12, p. 57.)

VENEREAL AFFECTIONS.

ACUTE EPIDIDYMITIS. — *Pulsatilla.* — Dr. Borcheim, in the Journal of Cutaneous and Venereal Diseases, says:— Numerous disappointments in the treatment of this disagreeable and painful affection by the usual methods, and the perusal of a few brief articles published in the journals at various times by Piffard, Sturgis, and Fox, of New York, have led me to employ experimentally the tincture of pulsatilla, and I am pleased to state, to my complete satisfaction, as in using this drug I found that not only was the relief its administration afforded more prompt than by the former methods employed by me (cathartics, poultices, rest, &c.), but that it completely did away with one of the most objectionable features of that treatment, namely, rest in bed. The cases upon which I base these few remarks are twenty-four in number, all of which have been treated within the past eighteen months, and they were all in the acute stage of the disease; hence I think I can safely draw correct conclusions. During my hospital service in New York, I had ample opportunities for practically testing the value of the treatment of acute epididymitis as advised by Prof. Bumstead, and arrived at the conclusion that the only source of benefit was the fact that rest in the recumbent posture was strictly enjoined. Now, the class of men who are liable to this disease are principally young men who prefer to suffer almost anything rather than have their troubles known, and it is with the greatest difficulty that they can be induced to go to bed. Now, here I think we have a remedy which does not require so exacting a discipline, as I never found in all my cases any necessity for complete rest in bed, the only requirement being the wearing of a suspensory bandage, and taking of the medicine. The relief from pain usually takes place within three days. The preparation employed by me is the tincture of pulsatilla manufactured by Boericke and Tafel of New York, the dose being two drops every two hours. No benefit is derived from the use of larger doses at longer intervals. (Dr. L. E. Borcheim, Glasgow Med. Journal, Sept. p. 234.)

GONORRHŒA.—*Treatment by Open Wire Bougies.*—Gonorrhœa is a specific catarrh of the mucous lining of the urethra—a condition in which there is rapid inflammatory cell-proliferation, and exudation of fluid from the mucous surface. These catarrhal changes necessarily begin at the anterior extremity of the urethra, and travel backwards. The fossa navicularis suffers early and severely, and backwards along the course of the passage, another part that is severely affected is the sinus of the bulb. These two parts are wider than the parts of the canal immediately behind each, and so small portions of fluid are apt to lodge more persistently there than in other parts of the canal. In the local treatment of this affection, it is obviously very desirable to keep separate the inflamed mucous surfaces. The condition is in many respects analogous to a moist eczema intertrigo, where cure is indefinitely postponed unless the surfaces are, by suitable dressing, maintained apart. The injections in gonorrhœa that have been most successful are those that have best fulfilled this indication of treatment, and lately Mr. Cheyne's medicated bougies of cacao-butter have given further aid in this direction. To carry out more effectually the keeping separate the secreting surfaces, I have had made open wire bougies. These are of two forms. The first form (Fig. 1) is for the effective administration of injections. The part *a* is a short length of catheter-tube, to which are soldered the wires of the open bougie, part *b*, and to the part *a* is also attached a short piece of India-rubber tube *c*. This instrument being introduced until the part *a* is well within the meatus of the urethra, the solution to be injected is introduced by a syringe, and, when quite full, the India-rubber tube *c* is compressed by a spring clip, to prevent the escape of the fluid. Within from twenty to thirty minutes, the injection will be almost wholly absorbed by the urethral walls, and then the instrument may be withdrawn. By this means, the injection is applied to, and kept applied to, any part of the urethra that may require it, until entirely absorbed. By the ordinary method at present in use, the contact is at best but very brief; and, as the part of the passage that is most in need of treatment is usually the most irritable, the injection is, by the instantaneous reflex contraction of that part, at once driven from it into other portions of the canal. The second form (Fig. 2) is an open wire arrangement throughout,

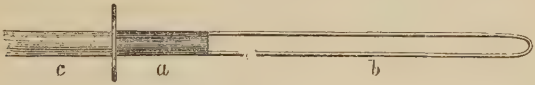


FIG. 1.

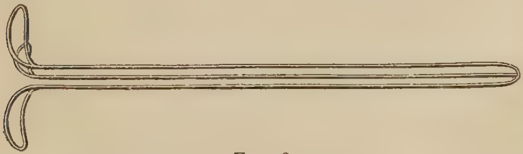


FIG. 2.

and is constantly worn by the patient, so that the discharge may drain freely away, and not lie in the passage and give rise to renewed secretion, as constantly goes on in the ordinary treatment at present. These instruments are well borne in the urethra, and the patient pursues his ordinary avocations while wearing the second form. The length of the wire bougies is of course in proportion to the distance up the canal to which the catarrhal affection has travelled; in recent cases, an inch and a half may suffice; in older cases, it may be necessary to have it greatly longer. Mr. Hilliard, of Renfield Street, Glasgow, can supply them to any member of the profession who may be inclined to put this method of treatment to the test. (Dr. D. C. M'Vail, Glasgow, British Med. Journal, March 15, p. 503.)

The Hot-Water Douche in Gonorrhœa.—The writer fills a fountain syringe with a quart of water at a temperature of 100° F., and introducing the tube as high as he can push it, he injects it and allows the fluid to run out. If this gives relief he increases the temperature of the water and repeats the injection, doing this twice or thrice daily. He thus summarises his results :—" 1. I should hope, and confidently expect, to abort, in from three to five days, a large majority of cases that were treated as soon as the first well-known symptoms appeared. In these cases I use the injection as *hot as it can possibly be borne*—three or four times in twenty-four hours; at least two quarts should be used at each time. 2. In cases of ten days' or two weeks' duration (at which time the inflammatory process has ended), I believe the most of the trouble can be relieved in a very few days. The suffering so characteristic of that stage will usually pass away in twenty-four hours. In many of these cases I have been enabled to force the water into the bladder, and then allow the patient to pass it away immediately. This has a good effect upon the dysuria, relieving it almost at once. In this class of cases, also, the water should be very hot. 3. Where two or three days have elapsed before the patient is seen, I do not expect so much as in the former classes. Even here much may be done by the external use of very hot water, and the careful, gentle use of the fountain-syringe, filled with *simple warm water*, at about the temperature of the body, or less. This promotes cleanliness, and is a sedative." (Dr. S. C. G. Gordon, New York Medical Journal, April 19.)

Corrosive Sublimate Injections.—Dr. Constantin Paul recently stated at the Paris Therapeutical Society, that in the treatment of gonorrhœa he now employs injections of corrosive sublimate, as recommended by Dr. Fanti (three solutions being used, containing respectively 1·40, 0·60 centigrammes, and 0·12 grammes of sublimate to 100 grammes of water), and the results obtained are very remarkable. He observed that the isolation, culture, and even inoculation of the microbe of gonorrhœa, to which the name of *gonococcus* has been given, would seem to have demonstrated the specific character of the micro-organism; and experiments have shown that a solution of sublimate in the proportion of 1 part to 20,000 effects its certain destruction. (Medical Times, July 19, p. 94.)

SYPHILIS.—*Tannate of Mercury.*—Herr Sigmund Lustgarten has made a communication to a medical society in Vienna on a new mercurial preparation, tannic oxide of mercury. It was prepared the first time in Professor Ludwig's laboratory at Vienna. It contains about 50 per cent. of mercury. It is a dark green powder, and has neither flavour nor odour; it is insoluble in water and in acid solutions, but soluble in alkaline solutions, and precipitates small delicate particles of mercury, which, examined with the microscope, present Brownian movements. The antisyphilitic value of this new remedy has been tested in Professor Kaposi's wards. The administration of a decigramme (two grains) two or three times a day was quickly followed by the disappearance of syphilitic symptoms at different periods. There was neither salivation, nor stomatitis, nor disturbance of the digestive functions. This remedy is quickly absorbed. Twenty-four hours after it has been administered mercury is detected in the urine. (British Med. Journal, June 7, p. 1106.)

SYPHILITIC PHAGEDÆNA.—*Opium.* — In all cases of syphilitic phagedæna, in hospital and in private practice, I have alone trusted to the internal use of opium, and have never been disappointed. It has proved as certain in arresting phagedæna of the penis or labium, of syphilitic origin, as surely as it has been found to arrest a sloughing sore elsewhere, following a cut or any other local injury. Of course, in all such cases, external applications, to ensure disinfection and to destroy smell, are not to be neglected. I know nothing better than a solution of sulphurous or chromic acid, to be followed by iodoform as soon as sloughs have separated. Chromic acid (1 in 2,000 to 4,000 of water) has the advantage of being a very cheap and most efficacious deodoriser: while, as a disinfectant, nothing, I believe, can surpass it. It destroys all smell of disagreeable or offensive discharges at once on application; and, as it must be used largely diluted, it becomes one of the cheapest disinfectants and deodorisers at present obtainable. I am indebted to my friend, Mr. Peter Squire, for my knowledge of the value of chromic acid as a disinfectant. In private practice, it is always a matter of some importance to avoid such painful applications as pure nitric acid, however useful it may prove as a remedy, provided an equivalent can be gained by a more soothing plan of treatment. I would not wish to imply by this statement that we may employ that in hospital practice which we would avoid in private. But there are many facilities for recourse to measures of a severe character without giving pain, in hospital, which are not as readily accessible in private, and especially in country practice. (Mr. George Pollock, p. 275.)

Phagedœnic Chancre.—M. Vidal, Hôpital St. Louis, Paris, has used the following formulæ for several years. Pyrogallic acid, 1 part, vaseline, 4 parts. Another which has given excellent results is, pyrogallic acid and starch, each 1 part, vaseline, 3 parts. For serpiginous sores, with many ramifications, pyrogallic acid, 1 part, starch, 4 parts, blown into the sore by a powder-blower; dressings to be renewed twice a day. Only a fresh preparation to be used, kept in a close-stoppered bottle. (Practitioner, July, p. 51.)

AFFECTIONS OF THE EYE AND EAR.

CONJUNCTIVITIS, SIMPLE AND PURULENT.—*Nitrate of Silver.*—During the progress of Dr. Jacob's "Lectures on Eye Diseases" through the columns of the Medical Press, I wish briefly to record the uniform success that has attended the hourly instillation of a solution of nitrate of silver, strength gr. j to the ℥j of water, in cases that have come under my care. Whenever there is any tendency to congestion of the conjunctival vessels, and pain and tenderness of the eye, I know no treatment more likely to give relief, and to effect a cure. Its application is almost, if not altogether, harmless, and the good effects are at once felt. In the purulent ophthalmia of the neonatorum I have found it wonderfully efficient in putting an end to the disease. Patients to whom I have given this solution carefully preserve the bottle, and give it to their friends, and always report upon its good effects, saying, that "it is worth its weight in gold," in spite of my warnings that they ought not so to use it, unless under proper direction. The treatment certainly bears a most favourable comparison with other methods. It is pleasanter than the use of zinc and other washes, which are applied by bathing the eye, and which rarely get through the closed lids; and it appears to me to be much less painful, and far more efficacious, than the use of the stronger solutions, such as gr. v of nitrate of silver to the ℥j of water. In such cases, its prescription has become almost a matter of routine practice, so universally successful have been the results obtained. (Dr. John W. Martin, Sheffield, Medical Press, Feb. 20, p. 157.)

Earache.—It is said that by the following simple method almost instant relief of ear-ache is afforded. Put five drops of chloroform on a little cotton-wool in the bowl of a clay pipe, and then blow the vapour through the stem into the aching ear. (Medical Times, July 12, p. 41.)

The following remedy it is said (Druggists' Cir.), has never failed to afford almost instant relief:—Olive oil, ʒ ii; chloroform, ℥i. Mix and shake well together; then pour twenty-five or thirty drops into the ear, and close it up with a piece of cotton to exclude the air and retain the mixture. (Dublin Journal, May, p. 478.)

Immature Cataract.—Patients are kept waiting for an indefinite period—it may be for many years—while the process of ripening is going on; a period of gradually failing vision, perhaps of anxiety and failing health, of possible penury or destitution. All lenses, whether cataractous or not, and if cataractous, whether wholly or partially so, may be extracted with as much success as the most mature cataract may be at present. I venture to ask you to give a trial to the procedure which has given me very promising results. That method I may designate as intracapsular or intralenticular injection. I found in a small book of lectures published in 1849 by our distinguished countryman, Sir William (then Mr.) Bowman, a very interesting observation. In speaking of the elasticity of the capsule, he stated that on one occasion, when making some observations on this subject, he allowed a lens to remain in water for some time, and found that the fluid had by endosmosis passed within the capsule, and that the lens was detached from the capsule completely by a layer of fluid. On pricking the capsule with a needle its elasticity was so great as to eject the water with considerable force. In this I found strong evidence in favour of my intracapsular injection-method for very immature cataracts and clear lenses. When such a separation of the lens from its capsule took place in a short time by endosmosis, why should not the lens be separated at once or quickly from the capsule by injection? Sir William Bowman's observation showed me that the connection between the lens and its capsule was easily severed, and left no doubt on my mind that, by a properly constructed needle, introduced immediately beneath the capsule, water injected would find its way rather towards the surface than into the body of the lens. The methods of injection which I have used are: 1. The introduction within the capsule of a needle attached to an ordinary hypodermic syringe. If there be any part of the lens-substance easily disturbed, the injection usually ruptures the capsule a little at the point of puncture, and washes out a good deal of cortex. It is certain that it clears out masses quite easily which could not readily be removed, even by a scoop. This mode of injection is perfectly safe. 2. After removal of the nucleus, the introduction of water inside the capsule by gravitation from a bottle fitted with a tube. 3. The introduction of a similar terminal to that attached to the bottle, but fixed to the syringe. The latter two methods require a good deal of care, and involve the question of the force allowable, and the time during which the flow of water and the syringing can be safely continued. It is difficult to regulate the temperature with precision, because the syringe and bottle, when removed from the vessel in which they are immersed, lose temperature quickly. I have had, however, instruments constructed which, I think, obviate the difficulty experienced in my first operations, and which I now have pleasure in submitting for your inspection. To summarise, it shortens operations, it puts aside scoops, spoons, and curettes, does away largely with the tedious process of friction through the lids to remove cortex. (Dr. W. A. McKeown, p. 383.)

LARGE STEEL CHIP IN THE VITREOUS BODY. — *Removal by Electro-Magnet with Retention of Normal Vision.*—A case illustrative of the value of the electro-magnet for the removal of iron or steel chips from within the eye has lately been under my care, and a short note thereof will, I doubt not, be interesting. J. J., an ironworker, was struck on the left eye by a piece of metal; the chip penetrated the globe, unknown to the man, at the inner ciliary region, the wound being small and cleanly incised. There was no pain. Vision was unaffected. The ophthalmoscope showed a foreign body (presumably metal) at the bottom of the vitreous chamber. The patient, who applied the day after the accident, was at once admitted into the hospital, chloroform administered, and the sclera opened through the tendon of the inferior rectus; through this opening, an armature, or end of a powerful electro-magnet, was introduced. On withdrawal, a piece of soft steel was found attached, weighing one grain, the surface being as large as half a split pea. Both eyes were kept bandaged for a fortnight. There was no reaction; the wounds of entrance and exit healed readily. Vision was normal, and, six weeks from the date of the accident, he resumed full work, and has since (four months) remained free from the slightest discomfort. In a considerable number of cases in which I have used the magnet, this is alone in its freedom from reaction and the exceptionally good results attending its use. (Mr. P. H. Mules, Manchester Eye Hospital, British Med. Journal, Aug. 23, p. 361.)

OTORRHŒA.—*Resorcin and Chinoline.*—Dr. Burnett has used powdered resorcin, pure or mixed with boric acid, one part to seven of the latter, with great success in chronic purulent otitis media. After cleaning the discharging ear, the powder is blown in, or the mucous cavity may be swabbed with a piece of cotton twisted on a holder and dipped in a pasty solution of resorcin. Chinoline is an energetic bacteria poison; its best known salts are the tartrate and salicylate; the latter is colourless and amorphous. It is blown into the auditory canal; it is a detergent and disinfectant powder; if the skin is ulcerated, the undiluted powder causes pain; hence a one-in-eight mixture with boric acid was satisfactorily substituted. It is a prompt destroyer of the aspergillus. The mucous membrane becomes blanched under the use of these drugs; the odour of decomposing pus is lessened or removed, and the secretions cease. (Dr. Chas. H. Burnett, Philadelphia, Dublin Journal, July, p. 94.)

PHLYCTENULAR CORNEITIS.—Phlyctenular corneitis owns a similar origin to that of eczema or "cold-sore" often seen on or near the lip in evident intermittents; and for it quinine is the grand remedy, the more effective the earlier employed. "The attending photophobia is charmingly controlled by wiping the moistened outer surface of the upper eyelid with a stick of nitrate of silver till a good smarting is produced. (Dr. C. P. Clark, New York, Medical Times, Sept. 6, p. 342.)

URÆMIC AMAUROSIS.—When amaurosis suddenly overwhelms a patient in both eyes with no ophthalmoscopic change, uræmia should be suspected even in the absence of any other prominent uræmic symptom. Uræmic amaurosis will continue only as long as the uræmia exists, and will disappear when the function of the kidney is re-established. When permanent injury to sight is observed, it may be due to preexisting retinal changes, not at all uncommon in Bright's disease. The chances for a full return of sight are somewhat impaired when the patient has been the subject of recurring attacks. By exhibiting jaborandi and other means for inducing free diaphoresis and by free purgation a catastrophe may be averted in the general forms of uræmia, but when it occurs in pregnancy premature labour is the only remedy which promises safety to the patient. (Dr. A. Friedenwald, Baltimore, Philadelphia Med. News, Aug. 9, p. 152.)

MIDWIFERY, AND THE DISEASES OF WOMEN.

ABORTION.—One is generally summoned to attend a woman who is reported to be flooding. In such a case, having ascertained that the patient is pregnant, the first question to consider is, whether we should endeavour to check the uterine action set up, and give the patient the chance of a labour at full time, or assist nature in the attempt she is making to throw off the ovum. The point which should decide this is the nature of the pain. If this be slight and unfrequent, and the hemorrhage be not excessive, we should, I think, at least attempt the first course; but, if the pain be frequent and considerable (and we find, on examination, a patent os uteri), together with considerable hemorrhage, the attempt will not succeed, and we must help nature to throw off the ovum. In the first plan of treatment, opium given in full doses, and complete rest in bed, are means to be used. In the second plan, we should, I think, make a vaginal examination with two or three fingers (not the whole hand), as it often happens that the ovum, or at any rate a large clot, will be found between the lips of the os; and very slight manipulation will detach it. This interference should only be very slight, for I have seen at least one case in which fatal metritis followed attempts to remove the ovum. If we find nothing to remove, and the hemorrhage be not alarming, the patient should be put to bed, and doses of ergot given frequently. The liquid extract of ergot P.B. in twenty-minim or half-drachm doses, every two or three hours, is, I think, the best form. Many practitioners combine it with dilute sulphuric acid. In case the bleeding is serious, the vagina should be plugged, to give the ergot time to act. In addition to these measures, it is a good plan to inject a stream of warm water through a Higginson's syringe, either through the os uteri, or, if it be closed, up to it. By this means, I once succeeded in detaching the ovum in a woman who was pallid and fainting through hemorrhage which had lasted nearly twenty-four hours, at intervals. There is no necessity to explore the uterus in ordinary cases, for time will expel the ovum, and thus clear up our case. It is important that all clots should be saved by the nurse, and examined by the medical attendant himself, and then the ovum will generally be found. Even if it be not, and after treatment the hemorrhage and pain cease, and vaginal examination tells us that the uterus is undergoing involution, we may, I think, conclude that it has escaped unnoticed by us; and, after nine or ten days' rest in bed, our patient may be allowed to get up. Of course, it is possible for part of the ovum to be left behind, but in such cases hemorrhage nearly always persists, and warns us that we must face the risks of an uterine exploration, in which I think "Barnes's bags," followed by skilful fingers, are less likely to do harm than instruments. (M.R.C.S., British Med. Journal, May 10, p. 936.)

Alcoholic Vaginitis. — Of the non-specific forms of vaginitis, that due to alcoholism is the most common and most important, and there is no cure for it, except the removal of the cause. (Dr. J. Matthews Duncan, Glasgow Med. Journal, Sept. p. 210.)

Fibrous Tumour Forceps. — *New Axis-Traction Vulsellum Forceps.*—Dr. Barnes exhibited a fibro-myoma, and a "New Axis-traction Vulsellum Forceps," which he had devised for the operation. The tumour was sessile and partly embedded in the uterine wall. Before it was possible to get a wire round its base, it was necessary to partially enucleate and to drag it down. The preliminary freeing of the tumour was done partly by the knife partly by the finger. Then the tumour seized by the axis-traction Vulsellum was dragged down. The axis-traction by carrying the instrument well back, not only brought the tumour within easier reach, without undue or misdirected force, but also left room in front for the manipulation required to adjust the wire and watch the action of the écraseur. The écraseur used was Weiss's endless drum écraseur. Dr. Barnes thought this application of the principle of Tarnier's obstetric forceps would prove of great value. (Dr. R. Barnes, Obstetrical Trans., p. 68.)

Forceps.—*Suggestion for the Easy Application of the Midwifery Forceps.*—One of the chief minor objections to the use of the forceps is the fuss and trouble necessary to place the patient, already much exhausted and worried, in the orthodox position close to the edge of the bed, and, when so placed, patients frequently complain of feeling unsafe, and as if in danger of falling. The plan which I have adopted entirely obviates these troubles, and is as follows. Let the patient lie in the ordinary position on her side, and at a reasonable distance from the edge of the bed, then let the upper blade be introduced as a lower blade, and then passed posteriorly round the head of the child into its proper position as the upper blade. When this is accomplished, the lower blade may be introduced in the usual manner, and the two handles locked. No force must be used, but the handle of the forceps manipulated as gently as that of a catheter when being introduced into the male bladder. I have applied the forceps in this manner more than twenty times in the last three years without any difficulty, and without causing any injury to the head or face of the child. I always use Simpson's long forceps, but I see no reason why any other forceps, with blades not wider than Simpson's, should not be used with equal ease. I have several times applied them in this manner before the head of the child has descended through the brim of the pelvis. Of course, if the head be impacted in the brim, this plan cannot be carried out. (Mr. Henry Cribb, Bishop Stortford, British Med. Jour., June 14, p. 1144.)

HODGE'S PESSARY.—*New Form of.*—I beg to bring before the notice of the profession a new shape of Hodge's pessary, which will, I hope, be more satisfactory in application than those already in use. This instrument has the following advantages. When *in situ*, the two shoulders pass forward to occupy the two small *culs-de-sac* at each side of the urethra, permitting the instrument to rest against the bone behind the symphysis pubis, which is now the real point of support. The pessary of the old shape rested against the urethra, which permitted it to slide forward across the mouth of the vagina. Further, the complete protection this shape gives to the urethra is evident, as it arches round and underneath it. Again, the urethra being central and occupying the hollow space, prevents displacement of the instrument to either side, which frequently happens after insertion of pessaries of the old shape. It is impossible for one round object (front of the old pessary) resting against another round object (the urethra) to retain its position, as it would naturally slip off to either side. Another improvement is that the crossbar is placed on the upper part of the instrument, so as to catch the cervix uteri higher up, as in cases of retroversion. Another feature is the inclination of the semi-circular notch, serving to further relieve pressure on the urethra. Grattan and Co., of Belfast, have made the instrument for me in four different sizes, and I have found it to answer my expectations fully. (Dr. Wm. Aickin, Belfast, British Med. Journ., Feb. 16, p. 322.)

IGNIPUNCTURE IN UTERINE DISEASE.—This remedy has for some time been popular in France and some other continental European countries in the treatment of indurated hypertrophy, or, as Dr. Thomas would have it, hyperplasia, with or without profuse catarrh or ulcerations of the cervix. Courty is a strong advocate for it. Dr. Prochownick of Hamburg does not advocate its substitution for Emmet's or Schröder's operations, as these cannot be replaced in suitable cases by any other procedures, but discusses it as an alternative measure in the treatment of swollen hypertrophied vaginal portion. He believes that in such cases it may be a valuable substitute for the wedge-shaped excision and amputation of the vaginal portion. The patients, after ignipuncture, are not confined to bed, and this is a great advantage in the case of the poor in dispensary practice. The author's method is to apply the ignipuncture every 10 or 14 days—two punctures to the anterior and two to the posterior part of the *portio* with a pointed galvano-cautery or Paquelin. In hypertrophy without catarrh, the punctures are made centrifugally from the vaginal surface to the lining of the cervix; when there is profuse catarrh, the punctures are made from within the cervix outwards. Before and after the puncture disinfectant irrigation is practised, and afterwards a tampon laid over the cervix. The first effect is to cause increase of swelling of the cervix for a few days. The subsequent reduction of size goes on for some months. (Dr. W. Gardner, Montreal, Canada Med. and Journal, May, p. 591.)

LACERATION OF THE CERVIX UTERI.—I have now made the operation upon two hundred and thirty-one patients. Not a single death has occurred. In six cases the operation was followed by perimetritis, parametritis, or peritonitis. In but three of these cases, however, were the symptoms sufficiently severe to cause material delay in complete recovery. In not a single case of trachelorrhaphy performed by me did secondary hemorrhage occur. In every case in which hemorrhage was troublesome during the operation it was readily controlled by the stream of hot water which it is my custom to have flow upon the field of the operation during its progress. Contrary to the practice of most operators, I have not, since my fourth operation, employed a tourniquet, ligature, or any similar method to control hemorrhage during the operation. The restoration of form in closing the divided lips of a torn cervix, especially where the deformity is great, is important. The removal of such pathological conditions as may threaten the development of cancer, and no one can deny that this is in a certain proportion of instances within the scope of the operation, may be even more important; but the influence of trachelorrhaphy properly done, upon subinvolution, cannot be over-estimated. Thorough denudation, cutting out all cicatricial tissue, and allowing free depletion embrace the essential points in the operation so far as its influence upon involution is concerned. Mr. Jonathan Hutchinson points out that in many cases the first stage of cancer is that of inflammation; that "all inflammations are infective, and inflammatory processes may pass by almost imperceptible gradation into malignancy." The acceptance and appreciation of the above facts would lead, in many cases, to the more vigorous treatment of localised inflammations, more especially when they are situated in structures known from clinical experience to be specially prone to cancer, as the uterine cervix, the mammæ, &c. These considerations alone, even if they were not supported by others, urge upon our attention, with great force, the importance of Emmet's operation. In more than three hundred cases of cancer of the cervix of which I have notes, but one occurred in a virgin, and but ten in married women, in whose cases I could obtain no evidence of abortion or child-bearing. Can any one deny that such facts point strongly to the local origin of cancer in these cases at least? And can it be doubted that injuries inflicted upon the cervix during parturition have a direct or remote connection with this origin? Would it not be wise to repair these injuries when they are appreciable by whatever method it may be done most speedily and certainly? If the rent be small then the operation is small, especially if it be done before chronic inflammation of the cervix has occurred as a result. The denudation need not be extensive or deep. In many cases an anæsthetic need not be administered, as the parts are not very sensitive. My method of operating, after much thought and some experience, I think worthy of consideration, as it must, as I believe, have some advantages over methods generally adopted. 1. I use nothing but the single volsella to draw the uterus down, with which I seize but one lip, the one to be denuded first, at a time. 2. I draw the uterus down as little as possible. This caution should be the more scrupulously observed if any cellulitis remains about the base of the broad ligaments or elsewhere. 3. I outline the denudation with a sharp knife, and then cut the tissue included in the line with a sharp scissors. This prevents the rolling of tissue at the borders. 4. Allow free bleeding or not, as the condition of the tissue of the cervix and the involution or subinvolution of the uterus may require. 5. Use a nearly half-circle needle with very sharp point, armed with Chinese silk. A needle thus shaped can be drawn through the second lip and withdrawn very much more easily than a straight needle, or one curved only near the point. The sutures may be left in from fifteen to thirty days without danger of cutting out. 6. Wash out the cervical canal at the close of the operation with a recurrent flow syringe, to remove any blood that may found its way there during closure of the sutures. Have the nurse wash out the vagina with warm carbolised water within an hour after the operation is completed. The vagina is not syringed again until the sixth day; then daily until patient is dismissed. Cleanliness is the only antisepsis employed. (Dr. Thaddeus A. Reamy, Philadelphia Med. News, May 10, p. 531.)

MENORRHAGIA.—Of medicines, all with which I am familiar—and I have tried a great number—ergot stands first. In obstetrics you are generally told that ergot produces its effect in about fifteen minutes. That is doubtful even in parturition; but in the unimpregnated woman, you must not expect it to act thoroughly till days of its use have elapsed, and in some cases I have observed its use has had no result, until it has been continued for weeks without intermission. After ergot, in popular estimation, come gallic and tannic acids. I am not quite sure that they have any effect at all. They may have an effect, and be as rationally used as other medicines. I have used them extensively, and the impression they have left on my mind I have just told you. The medicine which seems to me next best, after ergot of rye, is sulphuric acid, often combined with some saline; and no injury is done if the saline produces slight relaxation of the bowels. You have not long to wait for sulphuric acid to produce its effect. You may have to give it in large doses, and frequently; for instance, you may give one drachm, or even twice as much, in a day, dividing it into frequent doses. The beneficial influence of digitalis and cannabis indica is almost certain; yet, in point of trustworthiness, these remedies come considerably after ergot and sulphuric acid. One of the most powerful influences, and one with which I have been long familiar, is the use of heat. Heat is supposed by most people, professional and non-professional, to favour bleeding; but its influence in causing the contraction of involuntary muscles has long been known, and its use in cases of menorrhagia and metrorrhagia, whether simple or not, is very valuable, It is to be applied internally in the form of irrigation, by the passing through the vagina of a large quantity—pints—of water at 100° to 110° Fahr. This is not to be done long at a time, being continued five to ten minutes, and repeated several times a day. It is almost universal to swear by cold as a hæmostatic in our diseases, and I need not say that I have seen it used, and used it myself many times. In the form of ice applied to the external parts, it is, I think, quite as often injurious as not. It is best used by irrigating the vagina just as is done with hot water, or by placing small bits of ice in the vagina. Even used in this latter way, my impression is that its value is inferior to that of heat." (Dr. J. Matthews Duncan, Glasgow Med. Journal, Sept., p. 209.)

Hazeline.—According to Mr. Henry M. Chute, menorrhagia is a very frequent ailment of women in Cape Colony. He has found a valuable remedy for it, he says, in the extract of American witch hazel (*Hamamelis virginica*), or hazeline, in doses of half a teaspoonful, in sugared water, twice or three times a day. Mr. Chute states that it acts so quickly that it is not necessary to anticipate the flow, but when menstruation, after it has lasted the ordinary time, is not closing naturally, hazeline given as above will effectually restrain it, and after hemorrhage has ceased there is no advantage in continuing it. While thus taken, some patients have mentioned that they have a pleasant sense of exhilaration, of being strung up, and have lost that wearying sense of languor felt at these times. Another good result hazeline produces is that when there is dysmenorrhœa, it in a very quick and marked way relieves the pain. Mr. Chute mentions the case of a young lady who suffered severely—so much as to necessitate her keeping in bed, and who was once so bad as to require a hypodermic injection of morphia. Since she has taken hazeline, menstruation has been painless and not excessive as formerly. (Practitioner, Aug., p. 141.)

Placenta Prævia.—Early delivery appears to be about the most rational as it is certainly the most effectual method of arresting the fast ebbing powers of life, and allaying that sickening anxiety which every one must feel who finds himself alone in such an emergency. In any case of hemorrhage occurring before the 7th month, I believe that the best plan is to temporize while watching the patient carefully; keeping her strictly in the recumbent position in bed, and administering some sedatives and astringents (though these are too often useless), with cold cloths to the vulva: but if the hemorrhage should be at all severe, and any sign of uterine action present, no matter what the stage of the pregnancy, the labour must be accelerated. Uterine action is, of course, the best of all hæmostatics, but it is not always present. After the 7th month, as a rule, there is not much use in delay if the hemorrhage be severe; then the first and best thing to be done is to rupture the membranes, the uterus being supported externally, and at the same time to apply a binder firmly over the uterus and to give ergot to excite uterine contraction. Some recommend that when the os is undilated and the hemorrhage severe, it should be plugged, or a laminaria tent introduced. This is all very well when it can be done, but a better method is to use one of Barnes' hydrostatic dilators, I must say, however, that I have experienced great difficulty in using these dilators, and I prefer introducing one or two fingers into the os and sweeping them round in a circle for the purpose of separating as much of the placenta as is within reach, and at the same time exerting lateral pressure on the os uteri to hasten the dilatation. If, on the other hand, the presentation is not a natural one, some recommend the bi-polar method of turning. Having therefore determined in any given case that artificial delivery is necessary, the careful and cautious introduction of the hand into the uterus is beyond all measures the most efficient and satisfactory, and I can safely assert, from personal experience, that two or three fingers introduced into the os uteri are the best of all dilators, and when this much is accomplished the remainder of the case, so far as the accomplishment of delivery is concerned, is in the hands of the operator. Though I have turned without chloroform, it is always best to have the patient put fully under its influence, and the next point is to see that she is placed properly across the bed with the hips well beyond the edge, and the abdomen steadied, and the uterus pressed down by an attendant in the bed. The operator should not move *one step further* until the above preliminaries are completed. So long as a man has got the use of his right hand there is no occasion for his following the example of those ambidextrous gentlemen who profess to be so successful in using the left hand, as the pelvic curve can be taken just as well with the right, and it is stronger and better adapted for the work in hand in every other respect. On getting the fingers in the shape of a cone into the os uteri, they should be retained for some time *in situ*, the uterus being still pressed down externally, until the hand is admitted into the cavity of the uterus, passing through the placenta if necessary. After feeling the smooth internal surface of the uterus, the feet are to be searched for, and, as we are usually taught, one brought down. I prefer bringing down both feet when they can be readily found, which is not always easy, but once found the operator can take a rest, as the worst part of his task is now over, and it only requires a little patience and care in completing the case in the usual manner. (Dr. Keith N. Macdonald, Cupar, Edinburgh Med. Journal, Aug., p. 120.)

Combined Version in Placenta Prœvia.—C. Behm has used combined version in forty cases of placenta prævia, without a single death. This must be regarded as an extraordinarily good result for a condition which ordinarily gives a mortality of forty per cent. Hofmeier has already obtained similar results in the treatment of placenta prævia. The operation is performed as follows: When dangerous hemorrhage comes on the vagina should be tamponed until the cervix is closed. This being done, and the woman anæsthetised, the whole hand is introduced into the vagina, and two fingers into the cervix. If the membranes present, the operator endeavours to rupture them with the finger, then draws the presenting part (unless it be the buttocks) to one side, at the same time making pressure from without so as to carry the buttocks down, until he can grasp a foot. This is drawn through the cervix, so that the breech acts as a tampon on the lower segment of the uterus, and the placenta is pressed against the sides of the uterus. In central implantation of the placenta, the finger should be pushed through the centre. After this version the operator waits for the spontaneous expulsion of the child, or at least complete spontaneous dilatation of the cervix, in order to complete delivery. The duration of labor after version is between one-half an hour and eleven hours, the average being one or two hours. The mortality for the children by this procedure is very great, but the chances for the mother are better. The mortality for the children is, however, no greater than by the old operation. The causes of the great mortality of the mother under the use of the continuous tamponade is the infection through the blood and other matters adhering to the tampon. (C. Behm, Philadelphia Medical News, Aug. 16, p. 181.)

Prolapse of the Pelvic Floor without Relative Displacement of the Uterus.—It is so obvious as not to need demonstration, that descent of the uterus cannot take place by itself. There must also be change in the parts which support the uterus, and in those with which it is connected. The uterus rests upon the structures which form the floor of the pelvis, and have been called, when regarded as a whole, the "pelvic diaphragm." Prolapse of the uterus cannot take place without some alteration in the pelvic "diaphragm." But we may have yielding of the pelvic floor without any relative alteration in the position of the uterus. When the patient strains, the uterus and vaginal walls preserve the same relation to one another, and to the floor of the pelvis, that they had before; and when this is so, no vaginal pessary is required, nor will it do good. Support to the perineum is all that is wanted. The most convenient, and most cleanly way of giving this support, is by an ordinary napkin, very tightly fastened. (Dr. G. Ernest Herman, p. 400.)

Puerperal Fever.—*Iodoform.*—As to the suitability of iodoform as a means of rendering and keeping the interior of the uterus aseptic, and thus preventing the possibility of putrid absorption—it has been extensively used for some time past in the Rotunda for this purpose, with the most gratifying results. It is introduced into the uterus in the form of a a pessary, the amount of the drug in each being ʒ i, or ʒ iss. This decomposes very slowly, and exerts its antiseptic action for three or four days, at the least. I have also noticed that it has a powerful effect in lessening the temperature, quite apart from its antiseptic action. (Dr. A. V. Macan, p. 399.)

PYOSALPINX.—This interesting disease results from an inflammatory occlusion of the Fallopian tube, and is known as pyo- or hydrosalpinx according to the nature of the contents of the cysts there found. The disease is a very serious one, it causes intolerable suffering, is very often fatal, it is wholly incurable save by surgical operation. The operation for its cure has had in my hands absolutely no mortality at all. Up to the present moment I have operated on 62 cases of this kind, and not only has there been no death, but I know of only one case which has not been cured of all suffering. Two of the patients are since dead, one of acute English cholera of twelve hours' duration, and one of self-imposed starvation due to acute melancholia. Six of the patients I have lost sight of, but of all the others I can give an account up to a very recent date. One of the most constant features of menstruation when the tubes are diseased is that it is excessive, often amounting to severe menorrhagia, and this I regard as a strong argument in favour of my views. The pain of menstruation in most cases is excessive, often agonising, and it begins always before the appearance of the flow—this feature being of great assistance in the diagnosis. The pain excited by intercourse is generally so great as to lead to the entire discontinuance of the marital act. The patients are always sterile, and the history of the illness can generally be traced to an attack of pelvic inflammation occurring after a labour or miscarriage, or often after the suspicion of a gonorrhœa. In a few cases I have failed to get any such history. Of all the causes I think gonorrhœa is by far the most common, and the next most common is puerperal inflammation. The radical cure of this disease, indeed, relief of any kind for it, can be secured only by surgical operation. There is hardly a specialist of any note in this country. who has not had under his care some one or more of the cases on my list. The mortality of the radical cure must be very small as I have now operated sixty-five times without a death. (Mr. Lawson Tait, p. 407.)

TURNING IN CASES OF CONTRACTED BRIM.—A woman, who has had several children, easily brought naturally into the world, in about the sixth or seventh labour finds herself unable to be relieved in the usual easy manner; and her medical attendant, no advance having been made for many hours, is obliged to have recourse to long forceps, which often failing, subsequently to craniotomy. I find I have met with forty-five cases in which a contracted brim, resulting, as it appears to me, from a deposit upon the promontory of the sacrum, after several natural births, has necessitated some other than the ordinary treatment. What I am about to advance is *now* no new proceeding, but when I first practised it I believe it *was* new, or at any rate very rarely had recourse to. The first case that occurred to me, was a private patient of one of the Royal Maternity midwives. I found on inquiry she had always had easy deliveries. I at once determined to try delivery by turning, and brought a full-sized child into the world alive, but not without some difficulty. The same course I adopted in the same patient at two subsequent labours with the like result. Since which period I have followed the same plan in forty-five cases as stated, saving the lives of thirty-eight children and with no fatal results to any of the mothers. I have been very much surprised to find that this mode of practice has been very rarely followed by the gentlemen (and some of great experience) with whom I have had communication upon the subject. I know several of our professors believe that there frequently *is* a diminution in the capacity of the inlet of the pelvis in women after bearing many children, quite independently of ordinary disease. (Dr. P. Lodwick Burchell, p. 388.)

Turning in minor degrees of pelvic narrowing has been much resorted to since Sir James Simpson advocated it. He himself had practised it largely and had placed turning between the forceps and craniotomy. Greater experience, however, had led him to the conclusion that Tarnier's forceps give a better chance of delivering a live child than did turning. With the forceps in common use, turning in some cases was better; but he believed the cases were very rare in which Tarnier's forceps was not superior. (Dr. Robert Barnes, p. 389.)

UTERINE FIBROIDS.—*Enucleation of.*—Dr. Lomer, of Berlin, points out that the advances in abdominal surgery made of late years alter very considerably the point of view from which we should regard the enucleation of fibroids. Enucleation is in many cases very difficult and attended with considerable danger, while fibroids can often be removed by abdominal section with much less risk, or made to shrink away by removal of the uterine appendages. Enucleation must, therefore, in the future be reserved for cases in which the fibroid is so situated that its removal by enucleation is easy, or in which an abdominal operation is attended with more than usual difficulty. (Dr. R. Lomer, Medical Times, July 5, p. 30.)

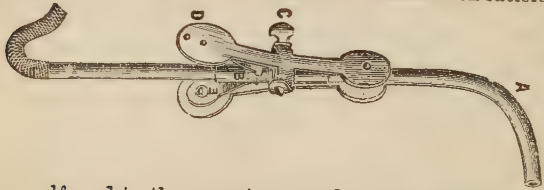
UTERINE HEMORRHAGE.—*Iron Alum.*—I was anxious to find a reliable remedy which could be easily applied without any apparatus; these advantages I have found in iron alum when applied in crystals of the size of a hazel nut, or even larger in a severe case. It is to be introduced with the finger up to the os uteri (and not into it), and there allowed to remain. The uterus will at once contract, a firm coagulum is formed, and the hemorrhage at once ceases. Iron alum is also antiseptic; as I have removed clots on the fourth and fifth day after its application, which were quite free from any disagreeable odour. In a case of very severe hemorrhage, two or three days afterwards I inject a little warm water (to which may be added, if you like, a little Condy's fluid) and remove the clots. It is perfectly free from danger, and I have never known it to fail. I have used the remedy in all cases of uterine hemorrhage where an immediate styptic was required; in accidental, unavoidable, and post-partum, a well as in secondary hemorrhage. Iron alum does not require any apparatus, or any preparation, as it is ready at hand; it will bring on immediate contraction of the uterus, which is the chief aim and object in the treatment of these cases; as remarked before, it does not require to be introduced into the uterus, only into the vagina, close to the os uteri, and there left. The preparation is both cheap and effectual. I had some pessaries of it prepared by Messrs. Ferris and Co., which I found expensive, and no better than the crude crystal; I therefore discontinued them. I find the crystals made with ammonia more permanent than those made with potash, and more to be preferred. Since I began using the crystals I never go to a case of labour without them; I have also used the pieces (too small to be introduced) tied up in a piece of muslin, leaving the ends of the string hanging outside, so as to more readily remove the alum on the following day; this method answers quite as well. I have also applied the remedy in four cases of uterine cancer, where the hemorrhage was very considerable and frequent. It controlled the bleeding entirely, and was re-applied on its recurrence. It also acted as a good antiseptic in these cases, and was the means of making the patients' lives more comfortable during the last six months of their sufferings. I have used it in several cases of leucorrhœa with great benefit. I wish my medical brethren to give it an unbiassed trial; and some, who are engaged in this specialty, in large towns, would have ample means of doing so, as they would be likely to meet with more cases in twelve months than I would in ten years, owing to the difference in population. (The late Richard Richardson, Rhayader, p. 392.)

UTERINE INERTIA.—*Strychnia.*—In a report in the Journal de Méd. de Paris, strychnia is recommended as a substitute for ergot in parturition. When the cervix is dilated and there is uterine inertia, a dose of the 1-130th of a grain of the sulphate of strychnia is to be given every ten minutes, the interval between the doses being increased as the head descends. Dr. Deghilage, who contributes this report, gives strychnia thus administered the preference to the forceps, the expulsive pains being very effective, and hemorrhage being less likely to supervene than when the instruments are employed. (Edinburgh Med. Journal, June, p. 1141.)

UTERUS.—*Action of Salicylate of Sodium on the.*—The conclusions of Dr. Balette (Thése de Paris) are that salicylate of sodium, in the ordinary therapeutic dose, calms the pains of dysmenorrhœa, appears to promote menstruation, and causes its reappearance in amenorrhœa, In four cases of pregnant women, in which the medicine was given in large doses, abortion occurred in two ; but no such result was observed in other cases of pregnancy in which the remedy was administered in moderate quantity. (Philadelphia Med. News, May 10, p. 537.)

ANÆSTHESIA.

ADMINISTRATION OF ANÆSTHETICS THROUGH THE NOSE IN OPERATIONS ABOUT THE MOUTH AND FACE.—For some time, I was in the habit of using a piece of catheter attached to the tube of a Junker's anæsthetic administrator, and passed into the naso-pharynx, as a means of maintaining insensibility in operations about the mouth and face, such as staphylorraphy, excision of Meckel's ganglion, &c. This method, however, having many shortcomings, I have devised the instrument of which the annexed woodcut is a representation. I have now used it in a number of cases with satisfaction



to myself and to the operators, and I am desirous now of bringing it under the notice of the profession. It has been made for me in two sizes by Messrs. Salt and Son, of Birmingham, to whom my acknowledgments are due for the careful manner in which they have carried out my ideas. The instrument consists primarily of a tube of ductile metal (A) about 25·0 centimètres long, bent so as to pass through the nares into the pharynx, and attached at one end to the tube of a Junker's apparatus, instead of the facepiece usually attached thereto. On this first tube slides a second, of firm metal, about 5·0 centimètres long (B), capable of being fixed at any point by a small screw (C) passing through it, and impinging on the ductile tube. The sliding tube carries on each side a wing about 7·0 centimètres in length (D), armed at its distal end and inner surface with a serrated ivory plate, which is pressed against the ductile tube by a spring (E) attached to its proximal end, and acting on the tube of firm metal. The method of using the instrument is as follows. The patient is first deeply anæsthetised in the ordinary manner with ether or chloroform. The screw fixing the sliding tube is loosened, and the tube itself drawn back to the proximal end of the ductile tube, which is then passed by the nostrils into the pharynx to such a position as may be convenient to the operator. This being accomplished, the short tube is slid downwards until it is possible, by divaricating the distal extremities of the wings, and pushing the tube a little further down, to clasp the sides of the nose tightly between the serrated ivory plates. The adjusting screw is then fixed, and the vapour of chloroform can be pumped through the tube by means of the Junker's apparatus. Should the operation be one in which the patient's mouth is constantly open, as in staphyloraphy, the wings may be made to clasp both nostrils, so as to prevent air from passing through either. Should the operation, on the contrary, be one in which the mouth is kept closed, the wings should clasp the outer surface of the nostril containing the tube and the opposite surface of the septum nasi, so that air may pass through the passage unoccluded by the tube. The advantages which I claim for the instrument are as follows. 1. Once *in situ*, there is no danger of the tube slipping upwards or downwards, and the administrator can, therefore, place himself in such a position as least to incommode the operator. 2. Perfect anæsthesia can be maintained by its use throughout an operation about the face of any length, without interfering with the operator's actions. On the other hand, in operations about the mouth and palate, the patient can be maintained at that point of anæsthesia which may be considered desirable. 3. The supply of chloroform can be regulated by the strokes of the pump, and that of air by occluding one or both nostrils. (Dr. Bertram C. A. Windle, Birmingham, British Med. Journal, Jan. 5, p. 18.)

BICHLORIDE OF METHYLENE.—My experience of it in surgery was limited to only a few cases; but in midwifery I had the opportunity of making a more extended trial of it. Here, it appeared to me, its advantages over chloroform were equally marked. There was little or no struggling and talking, which I have often found to be considerable drawbacks to the use of chloroform. Different samples of the agent, procured at various intervals, always gave the same excellent results. I next ordered some of Robbins's bichloride of methylene. This was much dearer; and a few trials convinced me there was a remarkable difference between it and what was sold as Morson's. I could perceive no advantage in Robbins's methylene over chloroform; indeed, the two seemed to be almost identical in their action. A folded towel was always used, which answered as well with methylene as with chloroform. It has surprised me to find no reference to these two varieties of methylene in the medical journals. I have more recently tried a mixture of five parts of chloroform and one of ether, and find that in obstetric anæsthesia there is much less excitement than with unmixed chloroform. The modification of the effects of the chloroform produced by this comparatively small proportion of ether is quite remarkable, so that I should be prepared to find important results from combination with other agents. (Dr. Robert Kirk, Brit. Med. Journal, Dec. 22, p. 1233.)

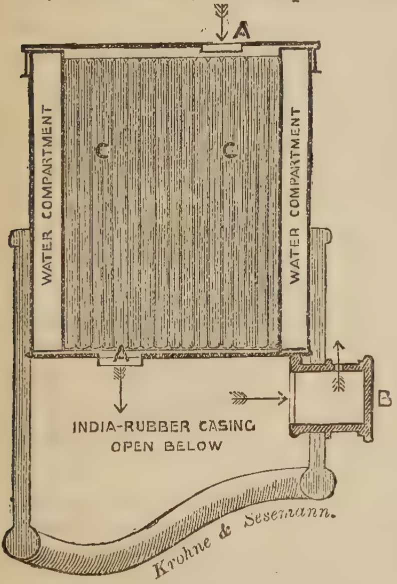
BROMIDE OF ETHYL AS AN ANÆSTHETIC FOR SHORT OPERATIONS, AND AS A PRECURSOR TO THE ADMINISTRATION OF ETHER.—Dr. Wood's is the best account of the physiological action of the drug that has yet appeared. I give here a summary of his conclusions, which certainly ought to be known by those who intend to administer it according to the new method. Dr. Wood says of his experiments: "They show that bromide of ethyl may cause anæsthesia without reducing the blood-pressure; but they also indicate that it is distinctly depressant to the circulation, reducing, when in excess, the force of the blood-current to a very marked extent. When the cut-out heart of a frog is touched with a drop of the bromide, or even when it is hung in the concentrated vapour, all movements cease. This, of course, indicates that the drug acts directly upon the heart-muscle or its contained ganglia." (Philadelphia Med. Times). The influence of this anæsthetic resembles, therefore, that of chloroform, and not that of ether; and it is probable that it shares the dangerous properties of chloroform. These statements, however, must be qualified by the results of other observers, which have shown that, although bromide of ethyl undoubtedly exerts a depressant action on the heart, it does so in a much less degree than chloroform. Thus, while fifty minims of ether and twenty of ethyl-bromide were required to weaken the action of the frog's heart, one or two minims of chloroform rapidly weakened and arrested it. (Brit. Med. Jour., Nov. 11, 1882.) Dr. Chisholm (United States) says: "I have found that its action is so very evanescent that it can never take the place of chloroform or of sulphuric ether for any surgical operation, which requires some time for its performance; but for all quick work which can be done in one or two minutes the use of this anæsthetic agent leaves nothing to be desired." The time being so short, every preparation for the operation should be completed beforehand. The mode of operation was as follows. A towel, between the folds of which paper had been put, was made up into a small nearly air-tight cone. Into this was poured about a drachm of the bromide of ethyl, and it was immediately inverted over the nose and mouth of the patient. To ethylise completely, a saturated vapour must be used, and the inhaler must not be taken from the patient's face once the apparatus has been put over the nose and mouth. Out of over three hundred administrations, the time required to produce deep narcosis did not in a single instance exceed sixty seconds. The anæsthetic sleep thus induced lasts about two minutes; then the patient awakes suddenly, as if from ordinary sleep, without either vomiting, nausea, headache, or any other unpleasant symptom whatever. "These really magical effects," says Dr. Chisholm, "must be obtained from the first inhalation, what I will call the primary anæsthesia. If the operation be protracted, and a second or even a third dose of the bromide of ethyl be inhaled, then I find nausea, vomiting, and heaviness, in all respects as if chloroform or ether had been used. Under this repetition, bromide of ethyl loses all its advantages." (Mr. W. Roger Williams, British Med. Journal, March 1, p. 402.)

LOCAL ANÆSTHESIA.—*Simple Means of obtaining.*—Dr. Cheize reports a case in which, wishing to remove an in-growing toe-nail, and being without a spray-producer, he covered the toe with a pledget the size of a crown piece, poured ether on it, and evaporated this by means of a pair of bellows. In five minutes anæsthesia was complete, and lasted while the nail was being removed, and the matrix seared with the actual cautery. (Dublin Journal of Med., Sept., p. 250.)

NEW ANÆSTHETIC METHOD.—The experiments instituted some years ago by M. Paul Bert with regard to the production of anæsthesia by means of a mixture of chloroform and air have issued in certain definite results which promise to be of much service in diminishing the danger without materially lessening the advantages which attend the administration of that drug. He finds that in the case of dogs the physiological action and the chance of fatal consequences are reduced to a degree apparently well within the limit of safety by the use of a mixture in the proportion of 25 grammes of chloroform to 100 litres of air—anæsthesia being complete. A proportion of eight per cent., after six or seven minutes, sufficed to induce and to maintain a state of surgical coma for fifteen to thirty minutes in six hospital patients of varying ages and of both sexes while under operation. The symptoms of the stage of exhilaration were much less marked than usual. Among other advantages which attend this new method may be mentioned the absence of the feeling of suffocation usual under the old system, in which a towel formed the means of administration; the face retains its natural colour; respiration is regular but somewhat quickened and sometimes snoring; the pulse shows no marked disturbance; buccal secretion is scanty, and the patient is spared those violent coughing efforts with which chloroformists are familiar and which often seem to initiate the after-vomiting. The return to consciousness from complete anæsthesia takes from eight to ten minutes. The quantity of chloroform used is small—in one case where anæsthesia lasted half an hour, it was only five grammes. By means of the apparatus adopted the patient escapes any local irritation of the skin, and the surgeon does not receive the fumes of the drug in his face. This appliance (the invention of Dr. H. Martin, originally used in analysing the gases of respiration, and referred to by Sir Spencer Wells in his *Diseases of the Ovaries*) consists of a pair of reservoirs connected with a caoutchouc mouth-piece and containing the required mixture of air and chloroform. By a special contrivance, a constant supply of the anæsthetic is maintained to make up for the loss by inhalation. The pressure within the reservoirs remains under all circumstances equal to that of the surrounding air. The respiratory movements can be accurately watched by means of a water manometer and scale affixed to the instrument. In operations on the mouth, anæsthesia is first produced by the aid of the mouth-piece and afterwards kept up by an occasional jet of the mixed vapour sent into the back of the mouth. A case of removal of both superior maxillæ, under the care of M. Péan, proved the suitability of the method to such cases. (Practitioner, March, p. 218.)

NEW ETHER INHALER.—*Dr. Blackie Smith's.*—With the view of facilitating and rendering more general the administration of ether, I have for the past two years been endeavouring to devise an effective apparatus which should be not only safe in use and simple in action, but also economical of the anæsthetic, and I have at last succeeded in the construction of an inhaler possessing these qualifications, and, in addition, capable of producing anæsthesia in a short space of time.

The accompanying woodcut, giving a vertical section of the inhaler (A Respiratory valves; B Expiratory valve; C Convolutions of bandage), will show that it is composed of two parts: the upper designed for the admission of air and for the reception and evaporation of ether, and the lower for application to the face of the patient. The upper or ether division is constructed of nickel-plated metal, and consists (1) of a double-walled compartment adapted for containing a quantity of hot water to aid in the evaporation of ether; (2) a central space surrounded by the preceding water-jacket, completely filled by a metal frame, on which are stretched convolutions of bandage, for the absorption of the anæsthetic; (3) a movable lid, fitted with an inspiratory valve: and (4) an immovable floor similarly provided. The lower or respiratory division of the inhaler is made of red rubber. Above, it is in close contact with, and encircles, the lower part of the ether division, while below, it is shaped for adaptation to the face. It is furnished with an expiratory valve. From the above description, it will be gathered that inspiration opens the inspiratory valves, whereby the patient is made to breathe the air heavily charged in its passage through the ether chamber with the vapour of ether, while expiration closes them, the expired air escaping through the valve constructed for that purpose. It has always been my practice, previous to administering ether, to dull the sensibility of the respiratory mucous membrane by allowing the patient to inhale for about two minutes a few minims of chloroform dropped on a single fold of towel, and then to supply the ether by the apparatus in the following manner. The water-jacket having been filled with tolerably hot water, the lid of the inhaler is removed, and



about two drachms of ether sprinkled on the bandage. The lid is then replaced, and the apparatus closely fitted to the patient's face, great care being taken to apply it so exactly that on inspiration all air passes through the ether chamber before reaching the patient's lungs. In about half a minute a larger quantity of ether (half an ounce) is added, and similar quantities repeated, if necessary, until the patient is in a fit state for operation. Generally in from three to five minutes from the commencement of the inhalation of ether, anæsthesia is complete, and it can then be easily maintained by much smaller doses of the anæsthetic. I have used the inhaler in this way in many operations varying greatly in severity and duration, and it has always acted to my satisfaction. Certainly some patients were more difficult to manage than others; but on the whole I have had little trouble from what have been termed the inconveniences of ether, and none at all from the anxious symptoms so commonly observed during the administration of chloroform. In a few patients the ordinary face piece will prove somewhat large; and to obviate this inconvenience each inhaler will be provided with an additional face piece rather smaller than that which is generally required. Towards the end of long operations the water in the jacket gets nearly, if not quite, cold; but this loss of temperature I have not found to be of any practical moment, the warmth being chiefly necessary at the commencement of anæsthesia, not after its establishment. Indeed, in very hot weather in this country, or in warm climates, I believe that hot water might be dispensed with altogether. In bringing my inhaler before the notice of the profession, I wish to direct attention to the following advantages which it possesses:—1. Safety: The patient is made to breathe pure air mixed with the vapour of ether, and he never again inspires his own expired air. 2. Economy: He does not waste the anæsthetic by expiring through the bandage. Dissipation of ether is also controlled by the use of the lid, which acts in addition as a protection to the bandage from the wetting effects of antiseptic spray. 3. Simplicity: The inhaler is simple and self-acting, and the ether may be supplied without removing the apparatus from the patient's face. 4. Efficiency: Anæsthesia is easily and quickly induced, often before the surgeon has completed his preliminary antiseptic precautions, and it is effectually maintained. The inhaler has been constructed by Messrs. Krohne and Sesemann, London, to whom my thanks are due for various suggestions and for assistance in points of practical detail. (Dr. P. Blaikie Smith, Anæsthetist Royal Infirmary, Aberdeen, Lancet, July 5, p. 19.)

NEW ANÆSTHETIC MIXTURE.—*Ethyl Bromide, Chloroform, and Alcohol.*—Dr. Byrd (St. Louis Med. and Surg. Jour.) strongly recommends the trial of an anæsthetic mixture, which, he states, he has used in 78 operations—among them ovariotomy, amputations, and many other capital operations—with great satisfaction to himself and patients. Since killing a patient, several years ago, with chloroform he did not like it as an anæsthetic; ether was disagreeable to a great many people, and was dangerous to use at night; and bromide of ethyl caused such deep congestion and raving delirium, and had been attended with such a sad result in the hands of Dr. J. Marion Sims, that he was afraid of it. The very fact of bromide of ethyl causing such deep redness of the face, and chloroform causing such a pallor, decided him to combine them. This he did, first using equal parts, but he found that mixture contained too much bromide of ethyl. At length he found that, by measure, ethyl bromide, 1 part; chloroform, 3 parts; and alcohol, 4 parts, are the proper proportions. He lets the patient breathe for a minute or so through the inhaler, with none of the mixture in it, to accustom him to the instrument; then he pours a drachm of the fluid upon the sponge in the inhaler, and allows him to breathe through it with the stopper out, after which he replaces the stopper, and lets the patient inhale full strength. Generally in five minutes he is fully anæsthetised, when the stopper may be taken out, to permit a greater admixture of air, and replaced as the judgment of the administrator may dictate. In the 78 operations but two of the patients vomited, and one of them had eaten a hearty meal but half an hour before the administration of the anæsthetic, and the other was a patient very subject to hysterical vomiting. There were dangerous symptoms in but one case, and those were caused by the administrator neglecting his business to watch the operation; elevating the feet soon corrected all trouble. If an operation is done under its effects at the physician's office, the patient will be apt to be able to leave the room without assistance in from five to fifteen minutes. He has used it with a simple napkin. The 78 operations required less than three pounds of the mixture, though some of the patients were under its influence for over an hour. A drachm is generally enough for a short operation. He advises that the patient be allowed to get fully under the influence of the anæsthetic before commencing an operation, so as to obviate, as much as possible, any shock that would occur from the patient's consciousness of what was going on. (Dr. Byrd, Dublin Journal of Med. Science, Jan., p. 94.)

RECTAL ANÆSTHESIA.—Considerable attention is being excited among physicians in America, on the subject of anæsthesia by the rectum, as advocated by M. Mollière. In the New York Medical Record a series of cases, in which this mode of anæsthetisation was resorted to, has been recorded by Dr. W. T. Bull, who gives particulars of seventeen instances. The ether is contained in a bottle from which a tube terminating in a vaginal nozzle from a Davidson's syringe passes, and the bottle itself is placed in a reservoir holding water at about 130° F. This temperature suffices to vaporise the anæsthetic, and as it grows too cold for the purpose more hot water is added. In some cases food was withheld from the patients for some hours, and then vomiting did not occur either during or after the administration of ether. It was found by Dr. Bull that, considering the trials as a whole, a much longer time was required to produce insensibility by this method than by inhalation; but the unplesant effects on the respiratory organs which usually accompany the latter mode, did not occur, or when present created far less irritation in the majority of instances. He reports, however, that seven out of the seventeen patients passed loose motions, sometimes copious and numerous, and in two instances tinged with blood; and he concludes, therefore, that this is a danger which deserves careful consideration in connection with the new mode of etherisation. The principal advantage it appears to possess, is that of permitting the performance of operations on the face without the obstacles which exist when the ordinary method is resorted to. Its drawbacks of discomfort in manipulation, indelicacy, and the demonstrated risk of dangerous injury to the intestine, seem to contra-indicate its use, except under conditions that make it desirable to substitute means of obtaining anæsthesia for that mode now commonly adopted. (Medical Press, May 21, p. 477.)

Etherization by the Rectum by Yversen's Method.—The author gives a report of four cases of etherization by the rectum, a method of producing anæsthesia first suggested by Dr. Axel Yversen, of Copenhagen. In two of these cases the mucous membrane of the bowel was prepared for its respiratory function, as it ought to have been in all, by a restriction of diet and the use of purgatives. No preliminary hypodermics were used. The method of administering the ether was simple. A definite quantity was placed in a bottle (only partially filling it), was vaporized by a water-bath of 120°, and the vapour conducted to the rectum by a rubber tube, terminating in a recurrent catheter, the free or recurrent end being closed by pressure of the thumb during the inflation of the bowel; the expiratory act was performed by removing this pressure, and removing the water-bath. He thus sums up the advantages and disadvantages of this mode of etherization: "The most obvious *advantages* are as follows: 1. Dyspnœa is avoided, and the patient is saved from the anxiety due to a sense of impending suffocation. 2. There is avoided the danger of simultaneous irritation of the superior laryngeal and pneumogastric nerves at the periphery—these irritations neutralising each other in the respiratory centre, and suspending respiration entirely. 3. The danger of asphyxia is lessened—the patient not being drowned in his own mucus, and the integrity of the pulmonary mucous membrane as an organ of gas exchange is preserved. Of course, some vapour finds itself in the lungs, and acts there as a local irritant—elimination being by that channel. But the quantity is not great, and does not constitute a source of danger. In the cases reported the increase in secretion was too trifling for discovery. 4. The stage of excitation is therefore not prolonged by the struggles for breath. In general, it may be said that the delirium of any alcoholic intoxication is a pleasant and good-natured one, unless the patient is crossed—as he certainly feels himself to be when a wet towel is pressed over his face. 5. Nourishment may be taken before operation to sustain the powers of life, and lessen the dangers from shock. 6. Return to consciousness is prompt—this stage not being prolonged by carbonic acid poisoning. 7. The anæsthetic seems as readily suspended as by the ordinary method—the bowel being promptly emptied by gentle massage. 8. Economy in ether is an advantage hardly to be mentioned with more important considerations.—The more obvious *disadvantages* are: 1. The exposure of person required—the abdomen being necessarily under observation, even if the catheter be inserted under cover. 2. More judgment and experience are required in the administration than by the ordinary method—over-boiling in the apparatus, and too much distension, being both painful and highly dangerous. The warning to cease is sudden, and must be immediately obeyed. 3. Just as the other mode is inconvenient in oral surgery, so in perineal operations is the apparatus needed for this method in the way. 4. In abdominal surgery, or if there be marked intestinal lesion, this mode is contra-indicated. 5. The inapplicability in cases of accident and emergency, when time cannot be allowed to prepare the bowel, has already been mentioned. 6. Diarrhœa has been noted in seven out of the thirty-seven cases on record, though in none of mine.—I believe this sequel is due to pre-existing intestinal lesion, to the lack of preparation, to a too great distension of the bowel, or to the accidental introduction of ether in liquid form. Furthermore, my method has differed from that of other experimenters in this respect, that instead of allowing the vapour to remain indefinitely, I secured a constant change by using a recurrent catheter, and introducing a certain quantity, or permitting it to escape, as indicated. Other points of advantage and disadvantage may occur in later experience, and to other observers, and new dangers may be discovered. But I am convinced that this method is worthy of further trial, and will find its place in surgery, fulfilling its own, though not *all*, indications. Like all else in therapeutics, it most pass through the stages of bungling use, condemnation, and revival." Dr. Miller exhibited a form of apparatus which he had had made by Charles Lentz and Sons, No. 27, South Tenth Street, Philadelphia, for this purpose. It consists simply of a water-bath, a graduated bottle provided with a funnel and valve for pouring in the ether, and a supply-pipe for conducting the vapour to the rectum. This tube terminated in a straight recurrent catheter, the exhaust-channel of which is controlled by a valve. The catheter is furthermore provided with a movable collar for pressure against the anus—it having been found that the vapour tends to escape by the side of the tube. (Dr. John S. Miller, U.S., Philadelphia Med. News, July 19, p. 72.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

ART. 1.—ON THE MEANS OF MAKING MALARIOUS COUNTRIES MORE HEALTHY.

By Professor TOMMASI-CRUDELI, Rome.

At a meeting of the International Medical Congress, Aug. 1884, Prof. Tommasi-Crudeli said it was easy to understand how the state of health in malaria-stricken countries was improved during the winter season, and how an epidemic could be brought about in a very short time if the temperature were suddenly to rise to a high number of degrees. A cooling of the atmosphere, of course, could not be effected by artificial means ; but the conditions of the soil could be improved by going the right way to work. As means to effect this end, he instanced the draining of the soil with pipes and canalisation ; a combined method, consisting in draining the undersoil and carrying off the water, to prevent its stagnating in the upper stratum of the ground. Already, in the last century, Lancisi had put forward the theory that the occurrence of malaria might be prevented by means of plantation, and this theory was carried into practical effect. He (Dr. Tommasi-Crudeli) criticised the different methods of plantation that had from time to time been advocated, especially that of planting the affected districts with the eucalyptus-tree. In these, he declared, he had no faith ; and he cited several instances from his experience in the Roman Campagna where these trees had been used, and where they had for a long period given complete satisfaction, until suddenly, in 1882, a severe attack of malaria occurred; whilst the other regions, where malaria used to manifest itself, were free from the disease. Speaking generally, it could be said that all the methods that had been employed to improve the condition of the soil had brought only a temporary, and not an absolute, bettering of that condition. Yet this precaution ought not, he thought, to be omitted. The problem was to make the soil sterile in regard to the malaria-ferment, without at the same time depriving it of its capacity to bear useful products. A thorough cultivation of the soil from all points of view was to be highly recommended. As one of the most important measures to be taken in the struggle against malaria, he laid stress on the adoption of the principle of strengthening the human organisation as much as possible, so as to supply it with an increased power of resistance to the action of the ferment. Several agents had been used with this end in view; as, for instance, quinine and different kinds of preparations from the eucalyptus; but none had given full satisfaction. He had himself used arsenic as a preventive; and, as it had turned out quite a success, he had greatly extended his use of it. He had first used arsenic in the year 1882, and had last year and this year improved upon the method. The treatment with arsenic ought to be commenced before the season for the affection had begun; and it was necessary to keep up the medicine, and give it in increased doses. In Bovino, near Naples, he had experimented in this way with sixty-seven persons, and the experiment was attended with quite satisfactory results. It was, of course, necessary to use a great deal of precaution in employing arsenic, so as not to make patients arsenic-eaters. At the same time, the observations in regard to this agent were far from being fully ventilated. One of the main difficulties experienced was to make people take to the arsenic.

Malaria, he said, was, in those parts of the world where it was a common malady, so trying to the people that it would, indeed, be a very great achievement and an estimable blessing if means could be found that would give entire satisfaction, and that would certainly prevent or overcome this dreadful disease.—*British Medical Journal*, *Aug.* 30, 1884, *p.* 408.

2.—OLD AGE.

By John Foster, M.D., F.R.C.S.Eng., Bradford.

Old age has formed the subject of thought and of writing among poets, philosophers, and physicians, in all ages, because it is the goal to which all life tends; and because it is necessarily associated with thoughts of that great problem—life, and that equally great problem—death. It would be impossible for so interesting a subject to have escaped such great observers as Shakespeare and Addison, and we accordingly find allusions to old age scattered through their works.

The late Dr. Farr, in his classical description of the march through life of a million children, has given, among others, the following results. These results are somewhat modified by subsequent calculations, but they answer my purpose for the present:—Of a million children nearly 150,000 will die in the first year; 53,000 in the second year; 28,000 in the third year; and less than 4,000 in the thirteenth year. At the end of forty-five years one half the million will have died. At the beginning of sixty years, 370,000 will still be living. At the beginning of seventy years, 238,000 will be living. At the beginning of eighty years 90,000. At the beginning of eighty-five, 38,000. At the beginning of ninety-five, 2,100. At the beginning of one hundred, 223. At one hundred-and-eight, 1.

From the Census of 1871, Dr. Farr calculated the mean life-time of both sexes in England to be 40·858, or nearly forty-one years. Mr. H. Humphreys has shown, however, that in the five years 1876 to 1880 the mean age at death was 43 56 years; females, 45·3; being a gain of nearly two years and three-quarters. Thus within twenty years—notwithstanding the increased density of the population, notwithstanding the unsanitary condition of large towns suddenly grown large, and the increased birth-rate—more than two and a-half years have been added to the life of every inhabitant of England. He also shows that more than 2,000 years have been added to the lives of every 1,000 males by the reduction of the death-rate in 1876-80.

It will be remembered that Dr. Rabagliati read a paper which led to an interesting discussion, and made some sensation in the country. He stated that while fewer lives were lost in the earlier years fewer lived to old age, and there was no saving of life at the more useful ages. I am not going into this question now. I admit that such a thing is logically possible, because if all died at the same age nobody would die before or live longer than 43½ years; instead of, at any age from a moment to a hundred years. This view was forcibly put in the Spectator in these terms, "What is the kind of life which is increasing, whether it is young life or mature life or aged life which is being enlarged? Are we young longer or mature longer, or old longer?" Do we live longer or are we only a little slower in dying? And here I am bound to admit that some of the gain in early life is lost in middle life. In other words, that while the expectation of life at birth is 2¾ years more than it was, the expectation of life from 35 to 60 is somewhat less—a mere fraction. "Notwithstanding the slight increase of mortality among males aged 35 and upwards, a large portion of the additional survivors live on to the higher ages. Of a thousand born the additional number of survivors is 35 at the age of forty-five, 26 at the age of fifty-five. 9 at sixty-five, 3 at seventy-five, and 1 at eighty-five. The increase in the number of survivors to adult and middle ages is much greater among females." By far the larger proportion of the increased duration of human life in England is lived between 20 and 60.

The object of medical science is to prolong human life to its longest term, and it therefore becomes an interesting question to ascertain what is the natural limit of existence. It is an impossible task to do this with accuracy, and fix a limit beyond which human life cannot pass. Dr. Farr says the natural lifetime of man is a century. The complete cycle of physiological life is a hundred years. That is the length of time the body will live under the most favourable conditions.

Another most interesting question is "When does old age commence?" Dr. Farr has divided life into stages as follows: Boyhood, age 10 to 15 years; youth, 15 to 25 years; manhood, 25 to 55 years; maturity, 55 to 75 years; ripeness, 75 to 85 years; old age, 85 and upwards. I should take exception to this division. Oliver Wendell Holmes makes old age to commence at 47, which is as much too early as Dr. Farr's is too late. Old age really begins in certain pathological changes which take place at different ages. It is interesting to learn what are the conditions which hasten or hinder these pathological changes.

It is held that all life begins in a homogenous or formless fluid, and from this developes into the varied forms of living beings. There is a life force, inherited from a pre-existing life, which builds up matter into living tissue and holds it together for a time; and the tenacity with which this force holds organised matter together does not depend on size, or strength, or muscular development altogether, but rather probably on an even balance between the several parts, and on something more. There is an axiom in mechanics that the strength of the chain is equal to the weakest link; so the vital strength of the body is equal to the weakest organ. We all do wax old as a garment—the tissues lose their elasticity, become brittle, and in some cases rotten. After the middle arch of life is passed, these changes become commoner, and there is danger if we continue to put the same pressure on a weakened vessel, that it may burst. In the hurry and strife of life men, and especially medical men, too often forget this truth, and pay the penalty. After the age of fifty or fifty-five a good deal more rest and a good deal more sleep are required than in earlier manhood. The physical powers have begun to fail; the mental powers should be at their best. It is probable that some of the greatest literary productions have been the work of men between fifty and seventy. Living public men in every department of literature, science, art, and politics may be cited in proof. For many years after the degenerative processes of age have weakened the bodily powers the intellectual powers remain comparatively unaffected. A weakened nerve fibre may retain its continuity, and an atheromatous vessel in the brain its entirety, for a great length of time if no great strain is put upon it, but let that strain be applied, and then the "silver chord is loosened, and the golden bowl is broken at the fountain."

In taking the decennial period 65 to 75, and still following the fortunes of the million children born, we find that 309,029 enter this age and 161,124 leave it alive. Diseases of the brain, heart, and lungs are the most common; 31,400 die of old age. The numbers that enter the next decennial—75 to 85—are 161,124, and the number that leave it alive are 38,565. 122,500 die chiefly of lung, brain, heart, and other local diseases. Nearly 59,000 die of atrophy, debility, and old age. Some writer says that he has met few or no cases of death from *old age*, everybody dying of some recognised disease. It is true that the symptoms of disease become obscure in old age, many cases of pneumonia and other inflammations escaping recognition. But it is also true that many deaths attributed to disease are mainly due to old age. "Slight injuries, cold, heat, want, or attacks which in early years would have been shaken off." Of the million with which we started, 2,153 live to the age of 95; 223 to 100. "Finally, at the age of 108, one solitary life dies." We find that life is beset with dangers, which vary at every stage. Diseases may be roughly divided into two great classes—the parasitic and the degenerative. The former are more prevalent in early, and the latter in the later, stages of life. Of cancer, which is one of the diseases of old age, it is uncertain whether it belongs to the parasitic or the degenerative type. As I am not dealing with the former—parasitic diseases—I will only remark that the more there are saved from the poisonous diseases, the more will remain to die of natural decay. As it is the duty of the physician to help man through as many of these stages as possible, and with as little pain as possible, it becomes important to study how to protect him from accidental diseases in the first place, and how to husband his forces in the second place, so that he may be able to travel as far on the way as possible before the inevitable time when his strength shall fail, and he shall fall out of the march and faint by the way.

The first essential of life is food, and, beyond doubt, of the twelve hundred million inhabitants of the world, the majority are underfed, and a large proportion are improperly fed. Poverty is the lot of the majority of the world, and the mortality among the poor and the hard-worked at all stages of life is amazingly larger than among the middle and higher classes. The human constitution possesses a great amount of elasticity, and will tolerate departure from correct diet for a length of time, but in the end the penalty is rigorously exacted by Nature. Lessened vitality inevitably follows impoverished blood and ill-nourished tissue. Undoubtedly, men are better fed than formerly, and fewer people die of starvation. But the increased density of the population by the flocking of people to the towns has introduced fresh dangers or rather intensified old dangers. Unless the sanitary improvements of a district keep pace with the increase of its population, the mortality inevitably increases. Something like 1-7th of the population of Great Britain live in London, a large portion of the rest live in large towns. Dr. Farr says, "What is especially remarkable in London is the high mortality of all ages after 25." The excessive mortality of London men is due to phthisis and pulmonary disease. The same holds good of all large towns. We see that improved health conditions, and increased population are fighting a great battle, and on the whole, if not at every part of the field, health is winning.

The conditions under which men live have much to do with their chance of reaching old age, but heredity has also something to do with it. This transmission of qualities acquired and inherited lies at the root of all improvement of the race. To leave the body better than we found it, and transmit that improvement in vital force to posterity is the true evolution by which hereditary taints may be abolished. In my student days a cruel pathology was taught that certain constitutions were doomed to hereditary diseases, and distinct lines of demarcation were drawn between those so affected and others. Logically that doctrine can only be sustained in a limited sense. Intermarriage must so mix up blood that no constitution could long remain free from taint. Death is the complement of life. All living bodies have their stages of growth, maturity, and decay. So all the parts of the body go through the same stages. The blood cells, the muscular fibres, the epithelial scales live their time, are cast off, and succeeded by others and often better ones. Thus death is not only the end but the beginning of life. "That which thou sowest is not quickened except it die" is a philosophical truth, and lies at the root of all improvement of the race, as well as at the root of all Christian faith. The last stage of the journey to this inevitable goal, like all the other stages, has its peculiar troubles, diseases and dangers. How these troubles may be relieved, these diseases avoided, and this stage of life made easier and longer, should be the constant and thoughtful study of every practitioner of medicine.—*Medical Press, March 5*, 1884, *p.* 202.

3.—ON EXOPHTHALMIC GOITRE AND ITS TREATMENT.

By JAMES STEWART, M.D., Physician to the Montreal Dispensary, and Professor in McGill University.

This is an affection usually described as exhibiting three symptoms. These are exophthalmos, goitre, and increased cardiac action. All cases of exophthalmic goitre do not exhibit these three symptoms. The exophthalmos or the goitre may be absent, but I believe it is generally admitted that quickened pulse is always present—that it is, in fact, an essential factor of the disease. A fourth prominent symptom is trembling of the voluntary muscles, especially when the patient makes any exertion. Sometimes it is confined to the arms alone, but more frequently it affects all the voluntary muscles. In your text-books you will find scarcely a reference to tremor as being present in this disease. It is, however, in the great majority of cases, as constant in its appearance as either the exophthalmos or goitre. Not infrequently it is so marked and troublesome a symptom as to attract the patient's attention, to the exclusion of all the other symptoms. Less frequently it may be necessary to make the patient perform some muscular movements before it can be demonstrated. Another not uncommon symptom of exophthalmic goitre is paroxysmal diarrhœa. Most of the text-books of the present day in which the subject is treated contain statements which would lead you to infer that the disease is essentially one of the cervical sympathetic and its ganglia. The evidence of its being a disease of this nerve, however, is very far from conclusive.

Evidence, although of a negative character, is of sufficient weight to make us at least suspect that the central nervous system is the true seat of the changes that give rise to this disease. We, however, have facts of a positive character which go a long way to prove that it is in this part of the nervous system that we must look for its origin. Filehne has produced protrusion of the eyeballs, enlargement of the thyroid gland, and increased action of the heart in rabbits by wounding the restiform bodies. I am not aware that there has been any microscopical examination of this portion of the medulla, or, in fact, of any part of the medulla, in persons dead from Graves' disease. Whether changes will be found or not, it is, of course, impossible to say. The rather frequent occurrence of glycosuria and even diabetes lend support to the view that the changes in the nervous system will be found (in part at least) in the medulla.

That the higher nerve centres are sometimes involved is evidenced by the fact that insanity is not an infrequent complication. In all cases there is considerable mental irritability and despondency, while at times the psychical symptoms are so marked as to constitute the most prominent part of the disease. What the nature of the changes is in the medulla and higher nerve centres is not known. That they are of a so-called " functional " nature in a great number of cases, is shown by the very frequent and complete recoveries.

The *prognosis* in exophthalmic goitre is much better than some of our modern text-books would lead you to think. By far the greatest number of cases recover. Relapses are, however, not uncommon, prolonging the disease to many months and sometimes years. Those cases attended by very marked psychical symptoms have a much more serious prognosis. It is especially bad when mental depression alternates with violent mania, especially when the mania is of the noisy, destructive, and incoherent kind. Cases of this kind run nearly always a short and lethal course.

Treatment.—As you will readily understand, the remedies that have been recommended in this disease are not few in number. Iron, quinine, digitalis and belladonna have all been lauded as having a directly curative action. It is very questionable, however, whether any of them possess this power. Of the four, digitalis is the one that is most commonly prescribed. It has, strange as it may seem, little or no power in slowing the heart's action. Iron, even for the relief of the anæmia that is often present in this disease, seldom does good, but frequently injury. There is no drug in my experience whose action is so beneficial in exophthalmic goitre as ergot. We know that when given in large doses, ergot acts in the following way on the heart and circulation: 1st, it slows the action of the heart; 2nd, it contracts the arteries; and, 3rd, it increases the blood pressure. How it acts in this disease I am unable to say, but the first sign that is noticed of its beneficial effects is a slowing of the circulation. From a considerable experience of its use in this disease, I have found that after two or three weeks' use, a pulse that is constantly beating at 130 or 140 is brought down to from 110 to 120. As the drug is continued, the swelling of the thyroid gradually diminishes also, and the protrusion of the eyeballs gradually recedes. To obtain marked amelioration, it is necessary to give it for at least three months. I have reported three cases of exophthalmic goitre treated by ergot, where the results were very satisfactory. In all a cure resulted. In a disease which tends in many cases to spontaneous cure, it is necessary to be very cautious in coming to a conclusion as to the virtue of any drug that may be used. Whether ergot has a directly curative power remains still to be proved. I think, however, that I am quite justified in saying that of all drugs we possess, it is the only one which seems to act with marked benefit in the disease. In order, however, to obtain its full physiological power, it is useless to prescribe it in the doses given in the Br. Ph. At least one drachm of the fluid extract should be given three times daily. Even from considerably larger doses than this I have never seen any untoward effects. Galvanism is probably the most powerful means for good that we possess. It should be applied, according to Erb, as follows: The anode should be placed over the spine between the shoulder blades, and the kathode worked along the whole of the cervical spine. From one to two minutes sittings of not more than six or eight Stohrer elements is recommended. Still weaker currents may be used directly applied to the posterior part of the head, so as directly to influence the medulla. Galvanisation of the sympathetic (subaural galvanisation) may fulfil the symptomatic indication of slowing the circulation.

The other symptomatic indications that arise during the course of the disease require no special treatment. The alleged cure of some cases of this disease by the removal of the enlarged thyroid has led some recent observers to maintain that there are two forms of Graves' disease—one local, and due to the pressure exerted by the enlarged gland on the sympathetic, the other due to changes in the central nervous system, and that the former is curable by surgical means.—*Canada Medical and Surgical Journal, July* 1884, *p.* 705.

4.—ON THE COMMA-SHAPED BACILLUS OF CHOLERA.

By Dr. Koch.

Being convinced as to the distinctive characters of the comma bacillus, the next thing is to determine the relation in which it stands to the cholera process, and whether it ever occurred in non-choleraic cases. In ten examinations made in Egypt this point was only tested microscopically, no cultivations having then been made. In India the intestines were examined in forty-two cases, both microscopically and by cultivations, and in not one was the bacillus absent; in very acute cases it was found almost unmixed. Choleraic dejecta from thirty-two cases yielded similar results, but in only two out of many observations on vomited matter were bacilli found. It was probable that in these two cases the vomit contained fæcal matter. One of the Toulon cases was that of a sailor attacked with cholera when convalescing from malarial fever; he died four hours after the seizure, and the autopsy was made half an hour after death, it being always an object to make such an examination as soon as possible. In this, as in other acute cases, the intestines contained almost a pure growth of the comma bacillus. The comma bacillus has now been found in nearly one hundred cases of cholera, occurring in a constant relation to the cholera process, being most abundant in the lower end of the ileum, where the changes are most intense, and being most pure in the acute uncomplicated cases. On these grounds the comma bacillus may be considered as specific to cholera. Many observations were made in other diseases, and in subjects who had recently passed through attacks of cholera, without finding these bacilli in the dejecta or in the bowels. These observations included cases of dysentery, typhoid fever, bilious typhoid, and infantile diarrhœa; the secretions of the mouth, which are so rich in bacterial life; the intestines in arsenical poisoning; but, although bacteria of all kinds were met with, the comma bacillus was conspicuous by its absence. The cholera process and the comma bacilli are intimately related, and there is no other conceivable relation but that the bacilli precede the disease and excite it. "For my own part," said Dr. Koch, "the matter is proved that the comma bacilli are the cause of cholera."

In cholera we have instances amounting to actual experimental infection of man—*e.g.*, the infection of those who are engaged in washing linen soiled by choleraic dejecta. Such linen contains the bacilli often in a pure form, and if infection occur through this medium, it must be by means of the comma bacilli, the only micro-organism present. The hands may be soiled and the bacilli introduced into the mouth by direct contact or through the food, or drops of the washing water may come in contact with the lips, and thus in some way the human being is fed with a small quantity of a pure culture of comma bacilli. Another instance was found by Koch in the case of a tank of which the water was used for drinking and other purposes by many people among whom cholera was raging. He found the comma bacilli in this tank, and learned that the linen of the patients was washed in it. Around the tank were some thirty or forty huts, inhabited by 200 or 300 people; of these seventeen died, the number taken ill not being ascertained. The tank also received the refuse from the dwellings. The Hindoos bathe in the tank, wash their utensils in it, and deposit excreta on its shore; and if a hut has a latrine, its outflow is into the tank. Now, it was found that after a time the bacilli became less abundant in this water, and coincidentally the cholera declined; whereas, had the epidemic been the cause of their presence, and not the result, the number of bacilli should have increased in it. The whole etiology of cholera suggests the view taken as regards the comma bacilli. They multiply rapidly, soon reach their term, and are supplanted by other bacteria. So in the intestine they multiply, set up irritation and diarrhœa, and all the typical symptoms of the choleraic seizure. Under normal conditions—in animals at least—the bacilli are destroyed in the stomach, and this harmonises with the important part played by predisposition, and the liability of those to be attacked who are suffering from gastric or intestinal catarrh, or who have overladen the stomach with undigested food, conditions which would facilitate the passage of the bacilli unchanged into the intestine. But the bacillus is limited to the intestine; it is not found in the mesenteric glands or in the blood. How, then, can it destroy life? Probably from the production of a poisonous substance, such as is produced by bacteria in putrefaction.

That the virus can be reproduced and multiplied outside the body is apparent, since the bacillus can be cultivated artificially, and its growth is not affected by comparatively low temperatures. Probably it does not grow in streams and rivers, where, owing to the current, a sufficient concentration of nutrient substance does not occur; but in stagnant water and at the mouths of drains, &c., vegetable and animal refuse may accumulate and afford the necessary nutriment. Thus is explained the propagation of cholera by the subsoil water, and the increase of epidemics with the sinking of its level, which lessens the flow and diminishes the amount of surface water. Indubitable instances of local epidemics arising outside India are not known, and everything confirms the view gained by experience that the cholera is due to a specific organism having its home in India. It used to be thought that the disease had started from Ceylon, Madras, or Bombay, but there is now general concurrence in regarding Bengal, the delta of the Ganges, as the original source. This is the only region where the disease never varies from year to year, for although some other regions, as Bombay, are never free from it, yet it is highly probable that this is due to its continued reintroduction. The upper region of the Ganges delta is thickly populated; the lower district, Sondarban. covering an area of 7,500 English square miles, is uninhabited, and here the Ganges and Bramahpootra break up into a network of watercourses. The district abounds in luxuriant vegetation and in animal life, and is the seat of inundations and the home of pernicious fevers. Here it is probable, where the vast amount of decomposing vegetable and animal life affords a suitable soil, that the cholera bacillus flourishes. All great epidemics begin with an increase of cholera in South Bengal.

In conclusion, Dr. Koch adverted to the subject of treatment, and reminded those who say that such discoveries do not enable us to cure the disease better than formerly, that a rational treatment of most diseases, and especially of infectious diseases, cannot be adopted until their cause and nature are known. But even yet the discovery of the cholera bacillus is important, as furnishing an aid in diagnosis which would facilitate the detection of the first case occurring in a district, and the adoption of measures to prevent its spread. Knowing also the nature and properties of the bacillus, and especially the readiness with which it is killed by drying, the right direction of prophylaxis is assured and the lavish expenditure of disinfectants checked.

so that there will not be a repetition of what happened in the last epidemic, when millions of gallons were poured into the gutters and sewers without the slightest need. Even therapeutically the knowledge of the comma bacillus may be of value. Diagnosis will be possible in mild cases and in the early stages of the disease, when treatment is of most avail.—*Lancet, August* 16, 1884, *p.* 292.

5.—ON THE TREATMENT OF CHOLERA.

By the EDITOR OF THE LANCET.

Our object is not so much with questions of disinfection as with strictly medical questions of treatment. There is one point on which Dr. Koch is in practical agreement with medical practitioners—that is, the wisdom of rectifying all ordinary gastric and intestinal disorders during the prevalence of cholera. Nothing is more striking in his conclusions than the bactericidal function of the human stomach when in health and when reasonably treated by its owner. He never found the comma bacillus in the vomited matters, except where he had reason to suspect that they contained accidentally some fæcal contaminations. The stomach which is affected with gastric catarrh, whether from drinking or over-eating, chill, or other cause, is likely to supply an amount of mucus-protection to the cholera bacillus which will secure its transmission unkilled into the intestine, especially the ileum, there to do its deadly work. It is an old point of medical observation that drunkards and other disorderly livers fall an easy prey in times of cholera. They will do well to mend their ways in time—to live "soberly and righteously,"—and, if any indigestion or dyspepsia survive such a change in their habits, to apply without delay to their medical advisers. It is a vulgar impression in cholera times that nips of brandy have a preventive effect. Nothing can be more incorrect. Such a practice would be well calculated to produce that gastric catarrh which, as Koch and all practitioners of experience agree, is most apt to give the cholera poison its best chance of operating on the intestine.

There is nothing in Koch's researches contradicting the general opinion of the profession that by far the best thing in cholera epidemics is to take measures to bring cases of diarrhœa under early treatment, and to employ such remedies as are of a corrective and astringent character. The College of Physicians has done good service in recommending that in any place visited with cholera house-to-house visitation should be instituted. In this way not only are cases of diarrhœa prevented from drifting, but opportunity is gained for seeing the homes in which they occur. The nature of the remedies to be used for diarrhœa will vary somewhat according to the nature of the case and the judgment of the practitioner. In some cases of gastro-intestinal catarrh, with little evacuation, such medicaments as bismuth and soda will be enough to correct the disorder, but where copious fluid evacuations from the intestine have begun they should be regarded as in themselves serious and first objects of treatment. No doubt there are cases of cholera, especially in the East, fatal without these, or in which the evacuations are disproportionate to the shock and collapse. But this is not the rule in this country, and indeed is exceptional. In the great majority of cases where the evacuations can be early controlled the constitution of the blood is preserved and the disease may be cured. Where there is not much vomiting, the chalk mixture with a few minims of tincture of opium will often suffice. In later epidemics, undoubtedly, the dilute sulphuric acid mixture has been rather preferred, especially where there is much sickness. More effective than either in many cases, and more easily retained in cases of sickness, is a small pill of solid opium and acetate of lead in the proportion of half a grain, to two, three, or even four grains of acetate of lead. The diet should be of a light and unirritating character; the patient should lie in bed, and have a large linseed-meal poultice applied to his abdomen; cold water should be freely allowed in quantities short of those which might excite vomiting; where that is not borne, ice is of great use.

When the stage of diarrhœa is passed, much more complicated changes and lesions have to be realised, and a wise treatment becomes increasingly difficult. It is not the least valuable part of Koch's investigations to have given more precise pathological definition to these changes, and to have shown us that, besides deadly collapse, with lividity, suppression of urine, pyrexia, &c., we have in a large majority of cases remarkably "severe intestinal lesions" to deal with—dark reddish-brown colour of the mucous membrane, with superficial hemorrhages, or the mucous membrane necrosed or covered with diphtheritic patches; the contents of the intestine being sanguinolent, ichorous, and putrescent. Opium here is out of place. Stimulants, too, can only be used with great caution. Food must be of an unirritating character. Mr. Macnamara recommends warm enemata of beef-tea with brandy every third hour in cases where the purging has abated. Food given by the mouth may be iced, and the powers of life must be husbanded by warmth and rest.

The difficulty in the treatment of the advanced stages of cholera will have two lessons for all sensible people:—First, that what is difficult for doctors must be much more so for those who are unlearned in disease; and, secondly, that their whole efforts should be directed to giving the profession every assistance in promoting the early treatment of cases, and diffusing general intelligence as to the laws which regulate the spread of the disease.—*Lancet, August* 23, 1884, *p.* 323.

6.—TREATMENT OF ASIATIC CHOLERA, ESPECIALLY IN REFERENCE TO PERMANGANATE OF POTASSIUM.

By F. E. M'Farland, Hon. Brigade Surgeon, A.M.D.

The remarks I have to make on cholera have reference simply to a few plans of treatment I have seen tried, and have practised myself, during a residence of thirteen years in India. It is with much diffidence I touch on the subject of treatment. Men of the greatest experience are sceptical about the fact of any one therapeutical treatment being particularly successful more than another. Yet to the physician it is of the greatest importance in an outbreak of cholera to have a definite plan in his mind, and to carry it out resolutely. It is most depressing to try a plan of treatment, and, after a couple of hours finding it unsuccessful, change it for another, and perhaps to another to give the patient every chance, and find that after all you are losing time. It is of the greatest importance to have a definite plan in the mind's eye. There are four principal plans of treatment I have seen adopted and practised myself:—1. *The calomel and opium treatment.* 2. *The salt treatment.* 3. *The belladonna treatment.* 4. *The permanganate of potassium treatment.*

[After reviewing the first three plans unfavourably the writer continues:]

The fourth plan of treatment is permanganate of potassium. This is certainly the most successful I have seen. The late Surgeon-Major W. A. White, R.A., employed it always, and it was from him I learned it. I think he first saw it used in Bulgaria. It has many things to recommend it. In the first place you can carry a small bottle in your waistcoat pocket, sufficient to treat hundreds of cases, and no other medicine is necessary; in the next it is a pleasant remedy. From beginning to end there is nothing in the treatment to cause apprehension to the patients or add to their sufferings. The plan Dr. White adopted was to give a teaspoonful of a palatable solution of the pure salt every ten minutes regularly, by the watch, until reaction was established, and then give beef tea, &c. I have carefully ascertained that one grain to four ounces of pure or distilled water is the strength of the solution required. The salt must be pure, and the solution must be renewed if it become discoloured, as it sometimes does. Condy's Fluid will not do. I was much struck the first time I saw it used. I had been treating a soldier patient with the salt solution from early morning till 9 a.m., and he was sinking fast. Dr. White then relieved me while I went to breakfast, and on my return I found my patient with reaction well established. I saw Dr. White treat several cases with the permanganate, and certainly I have never treated a case in any other way since, and I have had several sporadic cases. I treated one case for six hours before any material sign of improvement took place, and after sixty doses reaction became thoroughly established, and the patient made a good recovery. At the same time another man was attacked, and his symptoms were relieved in less than two hours. With the permanganate treatment the patient may drink water freely, or, what I think better still, meal and water, *warm*. The only thing is not to give the drink just on top of the permanganate, but wait three or four minutes, which the patient will willingly consent to do. I have told many of this treatment. Some object on account of the smallness of the dose. One medical officer to whom I recommended it gave it in $\frac{1}{4}$ grain doses; and this caused a burning sensation to the patient's throat, and added to his sufferings. The dose I mention is the proper dose; if more than a teaspoonful is given it is rejected, like everything else. The first symptom relieved is the sickness, then the thirst, then heat returns, purging and cramps cease, and after some hours the kidneys act. Cholera is terribly fatal with children. I have seen many carried off by it before I knew of the permanganate treatment, and since then I have never had an opportunity of trying it. I think in the case of children it would be a most valuable treatment, if anything would; and I do not see why a young child might not get the same dose as I have named for an adult. The dosology is very difficult in the case of children when the old stereotyped methods of treatment are adopted, and it is very difficult to know what to do for a child, and treatment is very unsatisfactory.

I will now speak of accessory treatment; and first of *drinks:* —To withhold water from a cholera patient is, I think, the height of cruelty. Except it be to arrest the sickness of stomach (which it is doubtful if it does), I do not see why ice is so much recommended. The mouth, tongue, and breath are cold, as is the surface of the body, and the temperature, as shown by the thermometer, is much below normal. True, patients will munch any amount of ice, or drink any amount of water, but they will drink salt and water with as much avidity, and I have found they will enjoy warm meal and water just as much. It is fluid they want, to supply the loss of water in the blood, and they will take it in any form. I put a good handful or two of oatmeal in a can of hot water, and let them drink as much as they like of it warm.

Sinapisms are useful sometimes over the heart and epigastrium. Hot bottles to the feet, sides, &c., are of great use.

Handrubbing.—This is often done very roughly. As the patient shouts out to rub hard, the cuticle is soon rubbed off the legs, which are most affected with cramps, and this adds much to the suffering afterwards from contact with the bed-clothes. The proper way is for the assistant to lubricate the hands well with warm oil, and to knead, press, and squeeze the affected parts rather than rub them.

Injections.—I heard of one medical officer who had good success from injecting, per rectum, large quantities of decoction of logwood warm. I have never tried injections, but I would be inclined to try large quantities of a dilute solution of permanganate of potash, warm as the patient could comfortably bear, or large quantities of salt and water, with chlorate of potash, well diluted and warm.

Bleeding.—I saw one remarkable recovery after bleeding. One night, during the height of the epidemic in 1862, at Allahabad, two patients were brought to the hospital, as bad almost as they could be. It was before I saw the permanganate treatment. I tried the salt treatment, gave them champagne, put on sinapisms, &c. They rejected everything given by the mouth. I had heard of three cases in gaol of natives who had been treated by venesection and recovered. I opened a vein in the arm of the worst case of the two men, but could only squeeze out a few drops of black blood, like tar. I then opened a vein in the other arm with the same result; the man would not bleed. I left him and was attending to the other case, when someone came to me to say the man was bleeding profusely. I bound up his arms pretty quickly; reaction returned; he turned over on his side and went to sleep, and never had an unfavourable symptom afterwards. As he had other treatment, I will not say positively it was the bleeding that saved him, but, humanly speaking, I believe it was. I tried it in two or three cases afterwards, but not sufficiently. I did not give it a fair trial. It was by accident the successful case bled so profusely.

Stimulants.—I believe in the non-stimulant plan of treatment; at the same time, if a patient had a craving for alcoholic stimulants I do not know that I would withhold them; but I have never observed this craving, rather the reverse. If I did give stimulants it would be what the patient was accustomed to. Soldiers, I have noticed, do not appreciate champagne.

These are the few remarks I have to make on the treatment of cholera according to my limited experience, and I give them for what they are worth. There is nothing original in anything I have named; even the meal and water was recommended to me by a Scotch officer not connected with the profession. Without venturing to recommend it confidently, I incline to the permanganate of potassium treatment; and yet I must make an important admission—namely, that I have never seen it tried at the commencement of an epidemic. I have seen it stated that at the commencement of an epidemic nine-tenths die, in the middle one-half, and at the close nine-tenths recover. If this be true, the permanganate can hardly be more unsuccessful than any other treatment at the commencement of an epidemic. I have seen the permanganate used when an epidemic was pretty near its height, and in several sporadic cases since, and I prefer it to any treatment I have yet seen. Neither would I like to let a patient die without trying venesection. A little blood from the arm might relieve embarrassment, caused by the right side of the heart being unduly loaded, and turn the tide in his favour, and if the patient will not bleed there is no harm done.—*Dublin Journal of Medical Science, Aug.* 1884, *p.* 115.

7.—ON THE USE OF PEROXIDE OF HYDROGEN AS A LOCAL THERAPEUTIC AGENT.

Dr. A. H. Prince contributes a paper to the St. Louis Medical and Surgical Journal, March, 1884, upon the merits of peroxide of hydrogen as a cleansing agent in suppurating cavities which, he thinks, are not sufficiently appreciated by the medical public. It owes its importance as a therapeutic agent to its instability, being decomposed, in the presence of a variety of substances, into water and oxygen, and becoming at the same time a powerful oxidiser. A drop of pus possesses a remarkable power in decomposing peroxide of hydrogen, and liberating nascent oxygen which directly adheres to and attacks all the adjacent tissues for which it has an affinity. and it thus becomes a powerful bacterial destroyer. As an antiseptic it is inferior to iodoform, but it resembles it in producing little or no irritation when used about tender organs. Yet it is armed with a quality which gives it pre-eminence over all other antiseptics, and destines it to a position of prominence in the armamentarium antisepticum. The difficulty under which antiseptic medicaments have laboured has been the impossibility of successfully applying the agent in an unirritating form, so that it might come in contact with and destroy the diseased germs, and it is in surmounting this difficulty in the department of dentistry that this unique quality has been brought before our attention. Among the difficulties with which the dentist has been obliged to contend, is the management of alveolar abscesses, situated, as they are, at the bottom of the alveolar cavity and accessible only through the root canal of the tooth. In peroxide of hydrogen the dentist has found an effective remedy, and its use in this connection forms an excellent illustration of the properties of this agent. The septic abscess is caused to heal by one application made in the following manner:—After removing the pulp and passing a broach through the canal of the root into the abscess cavity, a drop of the liquid is injected by means of Farrar's syringe. The cavity of the crown is then immediately closed with softened gutta-percha, before which, under pressure of the finger, the liquid is driven into the abscess cavity. Upon coming into contact with the pus in the fœtid cavity, the liberated gas permeates it throughout, and by the continued evolution of the gas the cavity is emptied of its contents, which boil out at the fistulous opening so thoroughly mixed that the appearance is that of foam or froth; while the remnant not thus removed is rendered so thoroughly antiseptic that the healing process proceeds uninterruptedly. Dr. Prince also gives the particulars of two cases illustrating the important place peroxide of hydrogen fills in ocular and in aural therapeutics. One was a case of severe gonorrhœal ophthalmia, and the other a case of mastoid abscess. In the first cold, as agreeable, was applied, and powdered iodoform was insufflated twice a day, and after each application a few drops of peroxide of hydrogen were injected between the lids with a pipette, and the lid quickly closed upon its withdrawal. In contact with the pus, the oxygen was immediately liberated in volumes sufficient to fill and distend the entire conjunctival sac, and presumably force the iodoform into, and the pus out of all the conjunctival folds and recesses, and effectually antagonise, for the time, the specific condition of the entire mucous tract. After each application, the matter was removed from the edges of the lid by absorbent cotton, a drop of a one per cent. solution of atropia applied, and the eye covered with a pledget of absorbent cotton soaked in a 25 per cent. aqueous dilution of laudanum, and changed according to the inclination of the patient. After each treatment there was a feeling of comfort and freedom from pain, and eventually final and complete recovery. The treatment adopted in the aural case was equally satisfactory.—*Dublin Journal of Medical Science, August*, 1884, *p.* 189.

8.—ON THE THERAPEUTIC USES OF RESORCINE.

This drug, belonging to the aromatic series in chemistry, to which carbolic acid, salicylic acid, and many other drugs also belong, was discovered, in 1860, by Hlassivetz and Barth, but has only recently come into use. Resorcine is very soluble in water, 95 parts in 100, and less so in ether, alcohol, glycerine, and vaseline. The aqueous solution is neutral. It darkens on exposure to the air, is phosphorescent, and treated with perchloride of iron it gives a beautiful blue colour; or, if sulphate of soda has been previously added, a deep garnet.

Its physiological effects have been well described by Justus Andeer. It destroys the low organisms, causing certain fermentations and putrefactions. A solution of 1 to 100 arrests alcoholic fermentation. A solution of 2·5 to 100 stops lactic fermentation, and is a valuable preservative liquid for anatomical specimens. It is, therefore, an antifervescent and antiputrescent of great power.

Justus Andeer and Péradon have experimented upon themselves, not only with small, but with large and dangerous doses. In doses of gr. xlv-lxxv a day, the drug only causes slight roaring in the ears, without other symptoms. ℈ viij, taken in twelve hours, produced dull pain in the head, with heaviness and loss of appetite. The same dose. taken in six hours, caused deafness, sighing respiration, vertigo, and lassitude, and modified neither the temperature nor the pulse. Taken in two hours it caused a deep sleep, followed by a normal wakening. Taken in fifteen minutes it caused troubles of sight, hearing, odour, and taste, followed by hallucinations. Péradon had the same experiences, with redness of the face, more or less profuse perspiration, and lowering of the temperature under large doses.

The therapeutic applications of resorcine are based on its antiseptic and antithermic properties, and it has been successfully used in certain infectious diseases. In typhoid fever it acts by combating the infective principles and the high temperature of the disease.

In intermittent fever its action seems to have fully justified the hopes of the experimenters, and Kahler regards it as quite equal to quinine. The cures of intermittent fever by resorcine may now be counted by the hundred. Beside this effect on the temperature, it has the advantage that it may be administered at the beginning of the access of fever; in fact, this is the best time for administering it, as its effect is very evanescent. Lichtheim gives one large dose of gr. xlv.

In diphtheria Justus Andeer uses resorcine in powder for making local applications. In severe cases he gives it internally. In 222 cases thus treated, he was not disappointed in a single one. In erysipelas it does not seem to have any marked effect except when injected hypodermatically along the erysipelatous line.

External Uses.—On account of its antiseptic action, resorcine in solution may be used for dressing putrid or atonic wounds. It has the advantage over several other antiseptics of being odourless, though it is less astringent than carbolic acid. The solution is also useful as a topical application in syphilitic ulcerations; and, as shown by a recent pamphlet of Leblond and Fissiaux, it is as useful in the treatment of soft chancres as iodoform.

Resorcine has no irritating action on mucous membranes. For internal administration it is preferably given in an aromatic solution, or in sweetened water to which an aromatic syrup is added. The doses vary according to individual circumstances. For external use the vehicle may be water, or water with glycerine and alcohol. It can also be incorporated in pomades, etc.—*American Journal of Medical Sciences, July*, 1884, *p.* 269.

9.—ON BICYCLE RIDING AND PERINEAL PRESSURE—THEIR EFFECT ON THE YOUNG.

By S. A. K. Strahan, M.D., Assistant Medical Superintendent, County Asylum, Northampton.

Cycling is doubtless a very healthy and pleasant mode of exercise when used in moderation, but now that tens of thousands of our boys ride bicycles daily, and "get up records" of thousands of miles in the year, it may not be out of place to point out some alarming evils which are likely to arise from this abuse of an otherwise healthy pastime. Some time ago it was pointed out that obscure nervous complaints would probably be developed by the continual jarring—the succession of shocks conveyed to the spinal column in bicycle riding; and this, I believe, has proved correct in many instances, notwithstanding "Arab springs" and "rubber cushioned" machines. But it is to something much more serious than this that I would now call attention: it is to the amount of pressure brought to bear upon the perineum in growing boys, affecting directly the prostate, the muscles of the bulb, &c., and indirectly the whole generative system.

The bicycle saddle is now reduced to the smallest possible limit. It is just wide enough at its posterior part to cover the ischial tuberosities, and it tapers off quickly to a long narrow horn in front, upon which the perineum rests. Let us consider the position of the body and limbs when the rider is mounted, and we can then appreciate the amount of body weight which must be thrown upon the perineum. In bicycle riding the legs are, when extended, vertical, and the pelvis is flexed upon the thighs or rolled forward. This rolling forward of the pelvis is slight in easy riding, and very marked in fast riding and hill climbing. Now, when the body and pelvis are bent forward, the ischial tuberosities are raised from the saddle, and the whole weight of the body, save what is transmitted to the pedal by the then extending leg, is thrown upon the perineum. It is not much of the body's weight that is conveyed to the pedals. In easy riding on the level the weight of the limb from the hip down is sufficient to move the machine, and in hard riding the extra pressure is gained not so much by throwing the body's weight upon the pedals as by pulling upward on the handle-bar, and so further increasing the pressure of the body upon the saddle. But even admitting that the pressure upon the perineum be only a few pounds, I hold that it must be injurious in the extreme, for were the pressure *nil* when riding upon a perfectly plane surface, it must at times be considerable when the machine is ridden over an unequal surface such as is afforded by our best country roads. Let those who talk of "the beautiful gliding motion of the bicycle" try to play a game of billiards after a ride of twenty miles, and then explain where all their "shakiness" comes from if their motion has been that of the skater. Now, this pressure on the perineum, whether it be continuous and increased at every jolt, or whether it be made up of jolts alone and be *nil* in the almost imperceptible and irregular intervals must be injurious, more especially to growing boys. It must cause irritation and congestion of the prostate and surrounding parts, tend to exhaust and atrophy the delicate muscles of the perineum, and also call attention to the organs of generation, and so lead to a great increase in masturbation in the timid, to early sexual indulgence in the more venturous, and ultimately to early impotence in both.

We all know that among the Tartars horse-riding causes complete impotence in many of their strongest and most daring men, with wasting of the testes, dropping of the beard, and change in the pitch of the voice; and we also know that the introduction of the horse into the western world had quite as much or more to do with the extermination of the red man than had the almost simultaneous introduction of the European. In a southern tribe of Indians—that is, a horse-riding tribe—it is a marvel to find a squaw with more than two or three children, though they—both men and women—marry young. Impotence is said to be common amongst them at thirty. The "disease of the Scythians" and its causes are sufficiently notorious.

If, then, these sad results are the outcome of immoderate equitation where there are an extensive seat and a stable foot rest, and where the adductor muscles of the thighs are used, what are we to look for, where our boys of ten and upwards spend the greater part of their own time riding bicycles, and get over thousands of miles in the year, perched upon a saddle no bigger than the hand which conveys every jolt of the machine to the body; where the jolts are ten times more numerous than those experienced by the equestrian and, occurring without any approach to rhythm, are conveyed unexpectedly to the person?

Some time ago Dr. B. W. Richardson when advocating cycling as a healthy exercise said, if I remember rightly, "that what made cycling so healthful an exercise was that in it you enjoyed all the muscular motion experienced in walking with this advantage, that the bodily weight was taken off the feet and legs." This, of course, would be an advantage if the bodily weight were better bestowed than it naturally is upon the feet; but as it is on the bicycle the transference of weight from the feet to the perineum cannot but be for the worse.

It must be understood that what is said in this article applies particularly to growing boys, who generally straddle the largest machine their length of leg permits, and so greatly increase the liability to perineal pressure. What cycling—for the saddle with the long, up-turned horn, is now almost universally used for the tricycle too—will do towards the advance of those prostatic affections which so often render the closing years of life miserable, time alone will tell.—*Lancet, Sept.* 20, 1884, *p.* 490.

DISEASES OF THE NERVOUS SYSTEM.

10.—DIAGNOSTIC VALUE OF WESTPHAL'S SYMPTOM IN SOME UNUSUAL FORMS OF SPINAL DISEASE.

By JULIUS ALTHAUS, M.D., M.R.C.P., Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park.

Loss of the knee-jerk is found in all cases of uncomplicated tabes in which we have to do with sclerosis of the posterior columns in the lumbar portion of the cord; and this symptom is of the greatest diagnostic value, more especially in those by no means unfrequent cases where the other symptoms of spinal disease are somewhat indistinct, and it may be overshadowed by signs which are apt to be referred to stomach and liver derangement, or are believed to be owing to gout, hypochondriasis, and other diseases. In the following case the diagnosis of gout had been made by several experienced practitioners, and it was chiefly the presence of Westphal's symptom which enabled me to recognise the existence of tabes.

A stockbroker, aged fifty-nine, married, but childless, consulted me in October, 1881. He complained of being eaten up with the gout, and of having the most fearful gouty pains in his head, chest, back, loins, stomach, and, worst of all, in the bladder. He had had syphilis, fifteen years ago, but had not shown any symptoms of it during the last twelve years. He had lately been treated with citrate of potash, lithia, and colchicum, but without relief. The peculiar description which he gave of the pains to which he was the subject made me suspect tabes; and on examining his legs I found the knee-jerk absent, which threw at once a flood of light on the nature of his malady. I then examined him for other symptoms of tabes, and found that he had Argyll-Robertson's symptom of reflectory rigidity of the pupils, staggered on standing with his eyes closed, had lost the sexual power some years ago, and suffered frequently from incontinence of the bladder and bowels. He had regular *vesical crises* from time to time, when he would be seized with severe pain in the bladder, chiefly at night, and constant desire to pass urine. On some occasions he had been called out of bed more than sixty times in the course of a single night, and would each time pass only a few drops of urine, in great agony. He had similar *rectal crises*, and would soil himself five or six times in the course of a night. The upper extremities were not affected, with the exception of an area of numbness in the right ulnar nerve.

In July, 1882, Dr. Philpot, of Croydon, asked me to see a patient with him, whose case had been diagnosed as "hypochondriasis with loss of nerve power" by several physicians; and although I was led to look for tabes by a different symptom, yet loss of the knee-jerk alone enabled me to speak with certainty as to the nature of the disease. The patient was fifty-six years of age, married, and father of two children, and had been actively engaged in business; his chief complaint was of great depression of spirits, indigestion, and tightness round the chest, which he had had for about two years. A feeling of constriction of the chest being a common symptom of tabes, I examined the patellar tendon-reflexes, and finding them completely absent, had no difficulty in eliciting the history and presence of numerous other symptoms of that disease. It appeared that the patient had had syphilis ten years ago. Eight years afterwards he began to complain of numbness in the third and fourth fingers of both hands, of dull pain in the back and legs, of incontinence of urine, constipation of the bowels, and loss of sexual desire and power. In addition to these symptoms, there was now reflectory rigidity of the pupils, Romberg's sign, difficulty in going downstairs, a sensation as if there were a pad of india-rubber under the soles of the feet, and slight ataxy in walking.

There is reason to believe that loss of the knee-jerk is in some cases the first, and in the majority of cases one of the first, symptoms of tabes spinalis. The diagnostic importance of this phenomenon, and of the modifications which it undergoes in certain cerebral and spinal diseases, is now almost universally acknowledged; and it is not too much to say that we owe a debt of gratitude to the distinguished physician and teacher who first drew our attention to it, for the new light which the study of this symptom and its modifications has thrown upon many obscure conditions of the nervous system.

It is not necessary for me to allude in this place to the different theories which have been started concerning the causation of the knee-jerk, nor to the diseases of the motor sphere in which it may be lost, such as infantile paralysis, pseudo-hypertrophy of the muscles, and atrophy from neuritis, such as occurs after diphtheria, &c. I will only add that in order to be pathognomonic for tabes, Westphal's symptoms must be combined with good voluntary power, a proper faradaic response, and idio-muscular contraction of the quadriceps femoris in response to direct percussion.

While, therefore, *loss* of the knee-jerk habitually indicates tabes spinalis, even where other symptoms seem to point in a different direction, its *presence* or *exaggeration* will show us that, although many symptoms of tabes may be present, yet the case is not one of locomotor ataxy or sclerosis of the posterior columns of the cord, as generally understood. In such cases, which are far from uncommon, we have rather to do with a combined system—disease of the posterior and lateral columns, or with insular disseminated sclerosis, than with tabes spinalis. The exaggeration of the knee-jerk is then to be explained by the sclerotic irritation of the lateral columns, which is too powerful in its effects to be neutralised by the disease of the posterior columns. Lightning pains are mostly absent, and the difficulty in walking is rather owing to paresis than to ataxy, or to a combination of these two conditions.—*Lancet, July* 12, 1884, *p.* 55.

11.—ON THE SPINAL CORD AT THE REGION OF THE FOURTH AND FIFTH DORSAL VERTEBRÆ.

By Alexander Harkin, M.D., F.R.C.S., Consulting Physician to the Mater Infirmorum Hospital, Belfast.

For many years, and soon after my introduction into practice, I had invariably observed in every case of hysteria, chorea, neuralgia, facial paralysis, and other neuroses in females, the co-existence of pronounced spinal tenderness on pressure over the fourth or fifth, more frequently the fourth and fifth dorsal vertebræ; with this practical result, the almost invariable and rapid cure of those maladies by remedies applied over these vertebræ alone. At first I regarded these manifestations as attributable to the peculiarity of the female constitution, its sensitive nervous system, its proclivity to emotional influences, and its general structural excitability; but, soon after recognising a similar condition of the spinal column in males so affected, I perceived that it was not referable to the female habit of body alone, but to localised lesions of distinctive character common to either sex, which in the absence of a more technical nomenclature might be considered as a form of so-called "spinal irritation." Still further observation elicited the extraordinary fact that this local spinal peculiarity, which at first I had looked upon as a morbid symptom, and the heritage of enfeebled constitutions, was in reality the normal condition of every healthy individual as well, of every age and class.

Of 300 men between twenty-one and sixty-five years of age, members of the Royal Irish Constabulary, equal in physical development to any men in a regiment of the line, and under my professional care, whose vertebral columns I examined at various times, every man shrank with an expression of pain when similarly tapped over the fourth or fifth dorsal, the great majority over the fifth, some on the fourth and fifth, the remainder on the fourth only, and, like the other classes examined, exhibited no signs of pain or inconvenience when the remainder of the spinal column was similarly examined. Of the existence of this limited zone of spinal hyperæsthesia in the healthy subject, anyone may satisfy himself by tapping sharply over the dorsal spines of a friend, when the phenomena I have noted will at once become evident; or, if still doubtful, he can experience in his own person its reality, through the instrumentality of another; but the knuckles or the percussion hammer must be made to strike the spinous processes vertically and not at an obtuse angle, or in a careless or perfunctory manner, as otherwise disappointment is likely to result. The pain experienced over these sensitive points is peculiar; some compare it to an electric shock diffused over the chest and arms, others liken it to the tingling sensation caused by a knock upon the ulnar nerve at the bend of the elbow, and all declare that it is of a most disagreeable nature. It is evident that the constant presence in the healthy and the delicate constitution of this latent form of spinal hyperæsthesia must, to a great extent, affect the teaching of those writers upon spinal pathology who regard tenderness on pressure upon the vertebral column between the shoulders as a pathognomonic sign of spinal disorder. It had been for many years regarded as such by myself; but the fact of so many painful affections having been thoroughly cured by counter-irritation over this spot made the conclusion appear to me as absolutely certain; yet I was mistaken, for, paradoxical as it may appear, although counter-irritation in this place rapidly removed the complaint, yet when the raw surface healed up and the cure was complete, the original spinal tenderness remained as pronounced as at first.

Among the ailments which yielded so rapidly to the counter-irritant treatment were trigeminal neuralgia, facial paralysis (Bell's), acute hysteria, dysmenorrhœa, the reflex vomiting, the neuralgic toothache and the pruritus pudendi of pregnancy, gastralgia and other neuroses; and when vesication was the method adopted, I was generally able to assure the invalid that in five hours, coincident with the formation of the blister, all painful symptoms would permanently take their departure. By neuralgia I mean the typical disease of remittent character generally, but not always departing at night, to recur at the same hour every morning, or *vice versâ*, and not that hybrid ailment, principally rheumatic, so often miscalled; chorea has almost always yielded to this plan of treatment, with some important exceptions, including the chorea of pregnancy, and that form depending on organic cardiac disease. The dysmenorrhœa of neuralgic type yields readily, and I have not once failed for many years by a single vesication over these vertebræ to put an end at once to the sickness of pregnancy for the whole remaining period of gestation, no matter at what stage I was consulted. The neuralgic toothache, and the pruritus pudendi of the puerperal condition, yielded as readily, and to one application.

In our present imperfect knowledge of spinal pathology, it is not easy to explain how it is that remedies applied solely to this limited area of the spinal column can control and cure disease located in the periphery and in distant organs. I have failed to obtain any proof that any fibrillary connexion can subsist between the dorsal cord or nerves and those conducting motor or sensory power to the organs under consideration. There is nothing peculiar in the structure or dimensions of the cord at the mid-dorsal region save that it is narrower and more compact than in other parts of the neural axis.—*Lancet, July* 12, 1884, *p.* 56.

12.—EFFECTS OF THE PROLONGED ADMINISTRATION OF THE BROMIDES IN EPILEPSY.

By A. HUGHES BENNETT, M.D., Physician to the Hospital for Epilepsy and Paralysis, &c.

The present inquiry is the result of an experience of 300 cases of epilepsy treated by myself with the bromides of potassium and ammonium. In all of these the clinical facts, as well as the progress of the malady, were carefully studied and recorded. The effects of the administration of these remedies on epileptic seizures I have already investigated and demonstrated in a somewhat elaborate series of observations. The general conclusions then arrived at were as follows:—" 1. In 12·1 per cent.

of epileptics the attacks were completely arrested during the whole period of treatment by the bromides. 2. In 83·3 per cent. the attacks were greatly diminished both in number and severity. 3. In 2·3 per cent. the treatment had no apparent effect. 4. In 2·3 per cent. the number of attacks was augmented during the period of treatment. 5. The form of the disease, whether it was inherited or not, whether complicated or not, recent or chronic, in the young or in the old, in healthy or diseased persona, appeared in no way to influence treatment, the success being nearly in the same ratio under all these conditions." Further experience has confirmed the correctness of these general propositions, so that they need not again be elaborated in detail. At present it is proposed to direct attention to the effects of the prolonged administration of large doses of the bromides, and to attempt to ascertain if, while arresting or diminishing the frequency and severity of the paroxysmal symptoms, they beneficially influence the disease itself, or in any way injuriously modify the constitution of the patient. On this subject much difference of opinion and misconception prevail. It is well known that the injudicious use of the drugs leads to certain physiological phenomena which are comprised under the term "bromism." It is also generally believed that the physical and mental depression resulting from their prolonged toxic effects constitutes a condition worse than the malady for which they were exhibited. One of the objects of this article is to question the accuracy of this assertion, a true apprehension of which is the more important when we reflect how universal is this method of treatment, and the deterrent effect it exercises upon epileptic attacks. The task, like other therapeutic inquiries—especially those connected with chronic disease—is a difficult one, there being innumerable pitfalls of error between us and a sound scientific conclusion. These, however, may, I believe, in great measure be surmounted by the accumulation of facts laboriously and accurately recorded, by the intelligent study of their details, and the impartial and logical deductions which may be drawn from the data supplied. The value of a therapeutic inquiry depends, not upon the opinions and undigested experience of individuals, or by the narration of isolated cases, but upon the indisputable proofs resulting from an unbiassed analysis of a large series of accurately observed and unselected examples. The solution of the problem if complex in all clinical affections, is especially so in epilepsy. Although the symptoms of this disease have been recognised from the earliest ages, our knowledge of its essential nature is as yet shrouded in mystery. The etiology and pathology are practically undetermined. The phenomena are not only due to a varied series of morbid conditions, but may assume a multitude of forms and degrees of severity, which may be, on the one hand, of the briefest duration, or, on the other, of a life-long permanence. The symptoms may comprise not only a diversity of physical ailments, but intellectual disturbances of the most terrible import. The malady may attack not only many whose systems are predisposed to disease, but those of the most robust constitution and with a healthy family history. The consequences of the disorder may be comparatively innocuous, but in other circumstances may be attended with the most disastrous effects on mind and body, and even on life itself. In a disease presenting such an intricate and uncertain course, it is obviously a task of the utmost difficulty to scientifically estimate the exact value of any therapeutic measures which may be adopted for its relief. The effects on one symptom, and that the most prominent, can, however, be accurately determined—namely, the paroxysmal seizures, which are definite and computable, and this has already been accomplished with tolerable precision. On the influence of the bromides on the disease itself, or on the epileptic state, we have less accurate information. In attempting to throw some light on this subject two preliminary considerations must be recognised—1st, the physiological actions of the drug on the healthy subject; and 2nd, the inter-paroxysmal symptoms of the epileptic constitution.

1. Medicinal doses of the bromides produce in healthy persons a general diminution of nervous energy. They act as a sedative, and thus dispose to repose and sleep. If they are excessive in quantity and long continued, especially in those susceptible to their action, a series of toxic effects are produced. Various organs and functions of the body are influenced, and the results of the poison may be briefly summed up as follows:—The intellectual faculties are blunted, the memory is impaired, the ideas confused, the patient is dull, stupid, and apathetic, and has a constant tendency to somnolence. The speech is impeded and slow, and the tongue is tremulous. The special senses are weakened. The body, as a whole, is infirm, the limbs feeble, and the gait staggering and incoördinated. The reflex excitability is lowered and the sensibility diminished. The sexual powers are impaired or abolished. These symptoms may be present in a variety of degrees, and in advanced cases even imbecility or paralysis may ensue. The mucous membranes become dry and insensitive, especially those of the fauces. This is attended with various functional disorders, such as nausea, flatulence, gastric catarrh, diarrhœa, &c. The skin is pale, and the extremities are cold. The action of the heart is slow and weak. The respiration is shallow, hurried, and imperfect. The integument is frequently

covered with an acne-like eruption. To these symptoms may be added a general cachexia. All these abnormal conditions, as a rule, disappear when the consumption of the poison is arrested.

2. Although some persons suffering from epileptic seizures are in the intervals of sound mind and body, in many the inter-paroxysmal state is characterised by certain symptoms peculiar to this condition, and independent of any form of treatment. These vary from the slightest departures from health to the most serious mental and physical disease. The general health is frequently unsatisfactory, the functions of the body being impaired in vigour, the digestion is weak, and the circulation feeble. The entire nervous system is in an unstable condition, the patient being at one time irritable and excitable, and at another depressed and despondent. There is a very common condition of so-called "nervousness" which is accompanied by head-ache, pains, tremors, and a variety of other subjective phenomena. The mental powers are enfeebled, the memory defective, and these intellectual alterations may exist in any degree, even to permanent and intractable forms of insanity. The physical conditions may also be changed, the nutrition of the tissues is often imperfect, the skin is pale, the muscles flabby, and the motor powers generally enfeebled, all of which may also present different degrees of severity so as to culminate in actual paralysis.

Admitting, then, that the prolonged and excessive administration of the bromides causes a series of abnormal symptoms in the healthy individual, affecting mainly the general nutrition, the mental faculties, and the sensory and motor functions, and also that the epileptic state is itself frequently accompanied by impairment of innervation of a somewhat analogous nature, it follows that when the drug is given for the relief of the disease care must be taken not to confound the two series of phenomena with one another. With this precaution in view, granting that the therapeutic agent beneficially controls and suppresses the convulsive seizures, we proceed to discuss whether in so doing it in any way injuriously influences the constitution of the patient. To answer this question has been found by no means easy. Comparatively few physicians have opportunities of observing cases of epilepsy in sufficient numbers to form substantial conclusions on the subject. Even in favoured circumstances it is difficult, especially in hospital practice, to ensure the regular attendance of the patient or to keep him sufficiently long under observation. The study and the recording of the facts moreover, demand an expenditure of much time and labour. These, added to the sources of fallacy already enumerated, render the inquiry a complicated one; but it is believed that an approximation to the truth may be arrived at by the following method of investigation. A large number of cases of epilepsy form the basis of the statistics, the great majority of whom are adults. No selection of any kind is made, and all are admitted irrespective of the cause, nature, or severity of the disease. The particulars of each having been noted, treatment by the bromides was instituted, the minimum dose being one drachm and a half daily, which, if necessary, was further increased in quantity. The progress of the patient was observed at frequent and regular intervals, and if the attendance was irregular the case was excluded from the present inquiry. The result of this proceeding is an aggregate of 141 cases, all of whom have been constantly under the influence of the drug for periods varying from one to six years. These are arranged in groups according to the length of time they were under treatment. The immense mass of details thus collected, added to the varied circumstances connected with individual cases, render it impossible, in constructing a summary of the whole, to do more than select certain prominent features of interest for examination and demonstration. These in tabular form are as follows :—

Talbes showing the Effects of the Continuous Administration of the Bromides in the Epileptic State, in 141 *Cases*, *the condition being ascertained at the end of each period.*

I. *For one year* (51 *cases*).		Per cent.
Physical and mental powers unaffected ..	39, or	76·4
Physical and mental powers impaired ...	6, or	11·7
Physical powers alone impaired	3, or	5·9
Mental powers alone impaired	2, or	3·9
General symptoms of neurasthenia	13, or	25·4
Bromide eruption	8, or	15·6

II. *For two years* (34 *cases*).		Per cent.
Physical and mental powers unaffected ..	28, or	82·3
Physical and mental powers impaired	2, or	5·8
Physical powers alone impaired	1, or	2·9
Mental powers alone impaired	2, or	5·8
General symptoms of neurasthenia	5, or	14·7
Bromide eruption	6, or	17·6

III. *For three years* (30 *cases*).		Per cent.
Physical and mental powers unaffected ..	28, or	93·3
Physical and mental powers impaired.. .	1, or	3·3
Physical powers alone impaired	1, or	3·3
Mental powers alone impaired	0, or	0 0
General symptoms of neurasthenia	3, or	10 0
Bromide eruption	3, or	10 0

IV. *For four years* (16 *cases*).		Per cent.
Physical and mental powers unaffected ..	12, or	75·0

Physical and mental powers impaired..	0, or	0·0
Physical powers alone impaired	2, or	12·5
Mental powers alone impaired	2, or	12·5
General symptoms of neurasthenia	0, or	0·0
Bromide eruption	2, or	12·5

V. *For five years* (6 *cases*).

		Per cent.
Physical and mental powers unaffected	6, or	100·0
Physical and mental powers impaired..	0, or	0·0
Physical powers alone impaired	0, or	0·0
Mental powers alone impaired	0, or	0·0
General symptoms of neurasthenia	3, or	50·0
Bromide eruption	0, or	0·0

VI. *For six years* (4 *cases*).

		Per cent.
Physical and mental powers unaffectsd	4, or	100·0
Physical and mental powers impaired..	0, or	0·0
Physical powers alone impaired	0, or	0·0
Mental powers alone impaired	0, or	0·0
General symptoms of neurasthenia	2, or	50·0
Bromide eruption	0, or	0·0

A general analysis of the facts collected show that in the majority of cases the physical and mental powers do not appear to be injuriously affected by the prolonged use of the bromides. It is not asserted that all the individuals placed under this section were necessarily sound in mind and body. In many instances the functions of these were impaired, but there was no evidence to indicate that this was the result of the medicine taken; on the contrary, there was every reason to believe that the symptoms thus displayed were a part of the original disease, and had existed prior to treatment. In a very small percentage of cases were both physical and mental powers unfavourably modified as a direct consequence of the use of the bromides, and even in these there is no absolute certainty that the drugs were entirely responsible for the symptoms, seeing that these might be attributed to the epileptic condition as well as to the toxic effects of the remedy.

I might record many cases in detail to prove the seemingly innocuous nature of even large and long-continued doses of the bromides in epilepsy. I shall, however, as an illustration, limit myself to a few notes on the four cases which compose Table VI., all of whom were continuously under the influence of the drugs for a period of not less than six years.

Case 1.—Louisa C——, aged twenty-nine, has suffered from epileptic attacks for fourteen years. Prior to treatment she had three or four every week of a severe character, consisting of loss of consciousness, general convulsions, biting of the tongue, &c. She has always been a delicate person, with a tendency to great nervousness, but otherwise intelligent, and in fair general health. She has taken one and a half drachms of bromide of potassium daily regularly for the last six years, and states that if she attempts to discontinue the medicine all her symptoms are aggravated. At present the patient is a robust, healthy-looking woman, of fair intelligence and good spirits. Her memory is deficient. Her physical powers are vigorous, and she earns her living as a bookbinder. She has an attack about once a month, and with the exception of this and occasional headaches and nervousness, she professes and seems to be in excellent general health. Sensibility, the knee-jerk, and plantar phenomena are normal. The fauces are insensitive, and their reflex is abolished. Pulse 60, normal. The circulation, respiration, and other functions are healthy. No traces of bromism.

Case 2.—Charles P——, aged thirty-five, has suffered from epileptic attacks of a severe convulsive character for eighteen years, having had one about once a month. Prior to treatment, although his memory was defective, his intelligence and general health were good. For the last six years he has regularly taken the bromides of potassium and ammonium (one drachm and a half) daily. At present he still continues to have an attack about once a month. His mental and physical condition is the same as before. He appears perfectly intelligent. His strength is robust, so that he does his ordinary work as a pianforte maker. Pulse 74, of good strength. All the reflexes are normal, except that of the fauces, which is abolished. Sensibility of the skin to touch slightly diminished. The sexual functions are normal. No symptoms of bromism.

Case 3.—Matilda W——, aged thirty-one, has suffered from epilepsia gravior and mitior for twenty-two years, having of the former about one seizure in three months, and of the latter about ten or twelve a day. She has always been a delicate woman suffering from headaches, general irritability, and nervousness. She is, however, perfectly intelligent. For six years past she has taken regularly the bromides of potassium and ammonium, one drachm of each daily. At present she has not had an attack of epilepsy major for a year, and of epilepsy mitior only about one a week. Although anæmic, her general health is good, and she is able to do a full day's work as a washerwoman. Intellectually she is quite sound, but has a treacherous memory, and is very nervous. Sensibility, reflex acts, &c., are as in the other cases.

Case 4.——Lucy D——, aged twenty-two, has suffered from epilepsy major for eight years. Formerly had about one attack a week. Has always been a delicate girl, but her general health and mental condition have been normal. For the last six years she has regularly taken one drachm and a half of the bromides daily, (potassium and ammonium in equal parts). She has had only three attacks during the past year. Her general health is excellent. She is robust and active, and takes her full share in domestic work. She is well educated, intelligent, with a good memory and spirits, and has no tendency to depression or somnolence. The sensibility reflex acts and other functions are as in the other cases.

In these four cases it has been ascertained that the patients were constantly under the influence of large doses of the bromides for a period of not less than six years, and practically without intermission. During this period not only were the frequency and severity of the convulsive attacks beneficially modified, but there was no evidence to show that the physical or mental condition had been in any way impaired. It is further to be observed that these, as well as many others of those constituting the later tables, are examples of unusually long-standing and severe forms of epilepsy, as evidenced by the fact of their chronic and intractable nature even under treatment. Notwithstanding the incompleteness of their recovery, these individuals have voluntarily, and often at great inconvenience and expense, persevered in the use of the remedy, which is a fair indication they derived some substantial benefit from it. The examples before us, one and all, declared they have found by experience that when they have attempted even for brief periods to discontinue the medicine their symptoms have all become aggravated. As a result the attacks increase in severity and number, the headaches return, the nervousness augments, and they are unable to perform either mental or bodily exertion. These sufferings, it is maintained, are greatly modified by the bromides, as under their influence epileptics may perform their daily work, when without them they are comparatively useless. It would be easy to multiply individual cases supporting the same general principles. One more instance only need be particularised—namely, that of a man aged thirty who has suffered from epilepsy from infancy, and who for the last five years has taken *four and a half drachms* of the bromides daily—*i.e.*, during that time he has consumed upwards of eighty pounds of the drug. Although a delicate person and intellectually weak, his friends state that during those years he has been more healthy and robust in mind and body than at any other period of his life. And these statements were confirmed by other testimony.

While attempting to estimate the therapeutic value of the bromides from a statistical aspect, one likely source of fallacy must not be overlooked. Most patients, and especially those attending hospitals, are difficult to keep under observation for long periods, more particularly if the progress of the case is unsatisfactory. In this way we may lose sight of those who do not benefit by treatment or who are injured by it. Although it is difficult to estimate these with accuracy, a certain rebatement must always be made on this count in computing results. At the same time we have in the present inquiry positive evidence in a considerable number of cases of the innocuous and beneficial nature of the drug, against the negative possibility only of its disadvantages. Of the 141 cases under notice, I only know of three who have died, and all of them of phthisis pulmonalis. The relations existing between the mortality and cause of death on the one hand, and the disease and treatment on the other, the paucity of the data do not permit us to determine. A further study of the tables would also seem to show that while the beneficial action of the bromides remains permanent, the deleterious effects diminish the longer the drug has been taken. This is doubtless due, as in the case of most poisons, to the system becoming habituated to its use. It has often been observed that the most marked effects of bromism have appeared at the beginning of treatment, and that the eruption, the physical and mental depression, &c., subsequently disappeared, although the medicine was persevered in. Those who have been under its influence for years rarely present any symptoms directly attributable to the toxic effects of the bromides; and if abnormal conditions do exist, these are the sequelæ of the malady, and not the results of treatment as shown by the fact that when the last is suspended, the original sufferings are augmented.

It may be suggested that a prolonged use of the bromides becomes, as in the case of opium, a habit. There is, however, a marked distinction between the two. Opium-smoking is a vice not only deleterious in itself, but one indulged in merely to satisfy a morbid craving. The bromides, on the other hand, are less hurtful in their effects, and are taken to avert the symptoms of a distressing and terrible malady. Assuming, then, that their consumption becomes a necessity, if it can be shown that the results are not serious, while the evils they avert are important, the habit acquired may be looked upon as a justifiable one.

A general review of all these circumstances seems to render it probable that the epileptic constitution is more tolerant of the toxic effects of the bromides than the healthy system. The most severe effects of bromism occur in those who are not the victims of this malady, in whom, as seen by the foregoing facts, they are not common. Theoretically this may be plausibly explained by the reasonable assumption that, as in epilepsy the entire nervous apparatus is in a state of reflex hyper-excitability, the sedative and poisonous effects of the bromides do not produce the depressing or toxic actions they would do in a more stable organisation. Whatever the reason may be, the fact is that the symptoms of bromism are not so severe in the epileptic as they are in otherwise healthy subjects.

Finally, the important question arises, Does a prolonged use of the bromides tend towards the eradication of the disease itself and the ultimate cure of the epileptic state? On this point I have no personal statistical evidence to offer, nor am I aware of the existence of any sufficiently scientific series of data to settle the question. Without there being actual demonstration of the fact, there is every reason to believe that such a supposition is possible. Clinical observation has determined that the larger the number of convulsive seizures the greater is the tendency to the production of others, and the more readily are they caused. Such is the abnormal reflex hyper-excitability of the nervous system of the epileptic that the irritative effects of one attack seem directly to predispose to the occurrence of a second; so that the larger the number of explosions of nerve instability which actually take place, the more there are likely to follow. Could such seizures be kept in check, this cause of the production of convulsions at least would be diminished, the liability for them to break out as a result of trifling external stimuli would be lessened, and the long-continued absence of this source of irritation might by the repose and favourable circumstances thus obtained, encourage a healthy transformation of tissue. Now, it has already been pointed out that in 12·1 per cent. of epileptics the attacks were completely arrested during the entire time the drugs were being administered, and that in a much larger per centage they were greatly modified in number and severity. It has been further shown that the remedies themselves, even when in use for long periods, are in themselves practically innocuous, while at the same time they continue to maintain their beneficial effects on the attacks. It therefore follows that a sufficiently prolonged treatment might in a certain number of cases be succeeded by permanent curative results. The chief impediment to arriving at trustworthy conclusions on this subject has been the length of time necessary to judge of lasting benefits, and the difficulty of keeping patients sufficiently long under observation. Another has been the objection raised to the method of treatment on the grounds of a visionary suspicion that the toxic effects of the drug were of a dangerous nature, and their results more distressing than the diseases for which they were given. So far as my experience has extended I believe this fear has not been warranted by facts.—*Lancet*, *May* 17 *and* 24, 1884, *pp*. 883, 928.

13.—ON THE TREATMENT OF EPILEPSY WITH THE HYDROBROMATE OF CONIA.

By R. Norris Wolfenden, B.A., M.B., Cantab., Lecturer on Physiology, Charing Cross Medical School.

Being frequently disappointed in the action of potassium bromide in the treatment of epilepsy, I have lately been trying a remedy which I believe has not previously been used for this complaint. If the result is not quite so favourable as I might have expected, it is at any rate sufficiently good to warrant further trial, and I venture to place on record the notes of seven cases, in the hope that it may lead to further observations. We have all experienced the failure of potassium bromide until poured in in such quantity that often a condition of bromism is established. The unsightly blotches thus produced are a source of annoyance, especially to the better class of patients, to whom personal appearance is a matter of concern. The following is a summary of my notes.

Case 1.—A——, girl, aged eight: ill for two years, with epileptiform seizures consisting of sudden flexions of the fore-arm (right), and a momentary vacantness of look; latterly the attacks had become more severe, culminating in loss of consciousness. Hydrobromate of conia, in doses of half a grain three times a day, was prescribed. During the first week she had six slight "fits." The dose was then increased to five-eighths of a grain, and during the succeeding week she had no attack. The medicine was continued for four weeks, during which time she had no fits at all, and slept better. The drug was then discontinued for some weeks, when she returned for further treatment. During the administration of the drug, this patient complained of constant frontal headache.

Case 2.—B——, male, aged twenty-two: suffered from true epileptic fits, with typical aura, convulsions, unconsciousness, and great headache afterwards. One and a half grains of hydrobromate of conia was ordered twice a day; during the week, this patient had nine fits. One and five-eighths grains was now administered twice daily for a week. During this time the patient had four bad fits. He was now, at his own request, put under potassium bromide, ʒ j doses, three times a day, which kept them under.

Case 3.—C——, female, aged thirty-four: had been ill for four years, with one or more fits every week, typically epileptic. While taking potassium bromide they were kept under. I ordered one grain of hydrobromate of conia twice a day to commence with. For a week she was better, with only one slight attack. The dose was increased to one and a quarter grains, and during the next fortnight she had one slight fit. She was then ordered back to bromide.

Case 4.—D——, girl, aged seven: has seven or eight fits a week of typical epileptic character. She has frequent right-sided convulsions, the right arm being suddenly flexed. Sometimes these culminate in a real fit, with insensibility and rigidity. The child is an imbecile. As while under ʒ j doses of bromide, the child still had frequent fits, I ordered one-quarter grain of hydrobromate of conia three times a day. For the first week she had five fits (all occurring the day after the medicine was changed). For the second week, there were seven fits. The drug was increased to half a grain three times daily. For a fortnight she was absolutely free from fits, and then had seven. The drug was continued for some weeks, but she still had fits occurring at irregular intervals, which were refractory to both conia and potassium bromide.

Case 5.—E——, female, aged twenty-seven: has typical epileptic fits, which continue under ʒ j doses of potassium bromide. I administered half a grain of hydrobromate of conia three times a day. During the next week she had no fits and stated that she felt better, but with frequent headache. For a month while under this treatment she had no fit, but complained of more frequent headache, in consequence of which I returned to bromide.

Case 6.—F——, male, aged eighteen: would have three fits a day, then go for a week without. They were typically epileptic fits. While under large doses of bromide, they were kept under, but not until an unsightly bromide rash was established, which was troublesome to the patient. For the first week, while taking one grain hydrobromate of conia twice daily, he had three fits. For a fortnight longer while under this treatment he had two fits. During the whole three weeks he therefore had five typical epileptic fits. As he stated that the drug made him feel giddy and weak, I returned at his own request to bromide, which so long as he was entirely under its influence in large doses seemed to ward off his attack. It should be stated that this young man was of weak intellect.

Case 7.—G——, female, aged fifteen: suffered from true epilepsy, dilated pupils; her optic discs were congested. She had not menstruated and had phthisical symptoms (cough, hæmoptysis, sweating). Half-grain doses of hydrobromate of conia were ordered three times a day. During three weeks she had no fit, which she stated was the longest time she had ever been without. I then lost sight of her.

The conclusions I draw from the treatment of these seven cases, are—that the drug is undoubtedly serviceable in certain cases, and those in which it fails are cases of convulsions depending possibly on some gross lesion of the brain (Cases 4 and 6). The slighter cases (*e.g.*, Cases 1 and 7) were distinctly benefited by it.

The drawbacks to the use of the drug appear in the complaints of headache, and where in large doses, of giddiness lasting for an hour after taking it, with sometimes a suffusion and congestion of the conjunctivæ. In the doses in which I have given it, there has not been noticed any cardiac or respiratory alteration. It is said that the dose of this drug must not exceed four-and-a-half grains in twenty-four hours, commencing with one-and-a-half grain. In my experience a child of eight bore one-and-seven-eighths grain with only headache; a child of seven took one-and-a-half grain per diem, without any complaint; two-and-a-half grains per diem were taken by a female without complaint; one adult man took three-and-a-quarter grains with impunity. In one case two grains per diem caused sickness, headache, giddiness, and "weakness" in a young man of eighteen. One-and-a-half to two grains appears to be followed frequently by headache. I think the drug deserves further trial, and I hope to try it more extensively in future. Combined with constant application of the continuous current, I have successfully treated with it a case of hemichôrea. In this disease, however, it would be rash to speculate whether the drug, the galvanism, or time was the most effectual in the cure.—*Practitioner, June,* 1884, *p.* 431.

14.—ON THE TREATMENT OF SCIATICA AND ITS ALLIES BY THE THERMAL WATERS OF BATH.

By Dr. JOHN KENT SPENDER, Physician to the Mineral Water Hospital, Bath.

The therapeutics of sciatica cover a wide field. Our quest is for some special remedy which may have the same control over sciatica as quinine has over supra-orbital pain; and failing this, we must take hold of all the rational indications for treatment that we can find. I will suppose now that in a seemingly uncomplicated case of sciatica, caused by a molecular or dynamic disturbance in the nerves themselves, we have given iodide of potassium and quinine in full doses; that we have thoroughly unloaded the bowels by croton oil and colocynth, with perhaps occasional enemata; that turpentine has had its chance in large quantities and small; that all the most approved narcotics have been administered by the mouth and under the skin (including hypodermic sulphuric ether and hypodermic hot water); that every external application has been used that is likely to do good, including dry-cupping and a Spanishfly blister; that acupuncture has been tried, and hints have been dropped to the weary and disgusted patient that the surgeon's knife may yet have to be employed in order to carry out "nerve-stretching"—and still the cry is that there is little relief and no prospect of a cure. To prevent recourse to surgical operation, I recommend a consideration of three points, each at its proper season. "First, never allow the acute and early stages of sciatica to come and go without a resolute effort to grapple with them. Order complete rest and a posture on the sound side; a strictly milk and vegetable diet; and, whatever else may be done outside and inside, give every three or four hours, for some days, twenty grains of salicylate of soda with a little iodide of potassium and bicarbonate of potash, abundantly diluted with water. Secondly, at the right time remember galvanic electricity, and apply it in the way described by Dr. Wilks in his lectures on Diseases of the Nervous System. Let the current run down the painful limb without moving the rheophores. Place the positive pole over the spine or the hip and the negative pole on the foot, and then let the current run for fifteen minutes or longer. Thirdly, there is the grand resource of bathing in hot water, of which the natural thermal springs of Bath furnish an unlimited supply, with the collateral advantages of comfortable and luxurious baths." We could wish that this resource were not so often long deferred, and that it was recommended with more confidence in all cases in which there is no suspicion of organic mischief elsewhere. For, however deep may be our scepticism about the efficacy of natural mineral waters, there are the obstinate therapeutic facts of our Bath Water Hospital, and the unbiased private experience of every practitioner in our city. It is useless to speculate beyond our knowledge, and our duty at present is to record what we know to be the plain truth about the efficacy of our thermal waters in certain diseases or disorders which have baffled well-devised schemes of drugs and diet. It is certain, however, that "bulk, and the alkaline quality of the water have much to do with its therapeutic virtue;" electric currents may be developed by the rapid passage of nitrogen gas; and while the body is immersed the douche should play on the painful limb, which ought to be stroked and kneaded with a brush or glove. Other manipulations may be done by professional shampooers in the intervals of bathing; but everything of this sort must be carried out with gentle dexterity. The "hip-aches" of old days were mostly treated with violent scourgings from the hot-water pump, the strokes being counted by the thousand.

A large proportion of young and middle-aged people who suffer from sciatica are cured by bathing, and recover a good measure of health; but there is a not unimportant residue in whom this neuralgia (like any other) is a sign of premature bodily decay, and refuses to yield to anything. Almost always we should press the administration of iron and cod-liver oil, and those fatty foods which promote the integrity of nerve-tissue and of general bodily vigour. Clothing is a matter of personal hygiene which must not be neglected; chamois leather drawers should be worn during the winter and drawers of merino during the three warmest months. If the pain be severe in the leg, and there be signs of vaso-motor disturbance, such as erysipelas and œdema, I advise a bandage to be worn during the daytime. The even pressure of a bandage controls muscular spasms, and helps a weak circulation. The allies and counterfeits of sciatica, as lumbago and rheumatic myalgia in any part of the lower limb, are generally much alleviated by the proper and persevering use of the Bath thermal waters.—*Lancet, June* 21, 1884, *p.* 1117.

15.—ON NODOSITY OF THE FINGER AND OTHER JOINTS IN ELDERLY WOMEN.

By William M. Ord, M.D., F.R.C.P., Physician to St. Thomas's Hospital, London.

For more than fifteen years the probability that the form of chronic rheumatic arthritis, called by Heberden, "digitorum nodi," is in many cases a dystrophy, determined by nervous irritation propagated from the uterus to the spinal cord, and reflected upon the joints, has presented itself to me. Let me give briefly the notes of a case which I saw first in the year 1868.

The subject was an unmarried lady, aged 26. She came to me complaining of terrible dysmenorrhœa, and of what she had been taught to call rheumatic gout. She was thin, anæmic, sallow of complexion, had abundant acne on the face, and was hysterical, having given up society and all active occupation for the contemplation of her ailments. There was no small justification for this absorption. Out of every month of her life she had only one week of ease. The menstrual period lasted one week, and was attended with excessive pain in the pelvis and back. A week before its commencement the smaller joints of the extremities became swollen and excessively painful. They remained in this condition till the end of the week following the cessation of the menstrual period. There were some variations in the severity of the dysmenorrhœa, and there were corresponding variations in the intensity of the joint-affection. During the week of ease the joints showed a little deformity, but were freely movable, and free from pain or tenderness. The "rheumatic gout" was the main object of her attention, from its long persistence; and at first I adopted the idea, already adopted by others, that the two troubles were the effect of a common cause, a rheumatic inflammation affecting joints and pelvic organs at one time. Treatment instituted upon this hypothesis failed, had long failed to give any relief, and what may be called the central position of the menstrual trouble, led me to the opinion that it was the primary mischief, giving rise, in some way that was then not very clear to me, to arthritis.

The uterine conditions were now steadily attacked. At the end of a twelvemonth's treatment, the dysmenorrhœa was subdued. As it yielded, the joint-trouble dwindled; and, with its cessation, the rheumatic paroxysms disappeared. So did the acne, the unhealthy complexion, and the general ill-health. At the present time, this lady is stout, healthy, and vigorous of mind and of body; but the joints retain some painless deformity.

Haygarth, writing in the year 1805, on the "Clinical History of the Nodosity of Joints," stated that he had seen thirty-three cases of that condition, all in women. He regarded the affection as peculiar to women, and as belonging to the climacteric and subsequent periods of their life. Only three out of his thirty-three cases had the "nodes" during the period of regular menstruation. Of these, two appeared to be between thirty and forty years of age; the third had suffered twelve abortions. In all, the fingers were chiefly affected. Haygarth separated this affection as "nodosity of joints" from "rheumatic gout"—a term already in use when he wrote; and he considered it to be chiefly a disease of the middle and higher classes. Curiously enough, when I analysed my note-book, I found records of just the same number of cases—not of nodosity of joints simply, but of rheumatic arthritis, combined with decided symptoms of uterine disorder or irritation. I excluded from the list cases in which there was evidence of uratic deposits, and cases in which no known uterine complication existed, though both classes demanded separate attention, as forming chapters of the history of arthritis.

The seat of arthritis was various. It affected the hands alone in thirteen cases; the hands, wrists, and elbows in three; the upper extremities in one; the right hand only in one; the right hand and wrist in one; the hands and feet in one; the hands, feet, and knees in one; the knees and ankles in one; both extremities in six; both extremities on one side in one; the ankle and tendo Achillis in one. From this, it appeared that the hands were more often affected than any other parts, the metacarpo-phalangeal joints being of all joints the most obnoxious to this form of arthritis. The hands, besides being alone attacked in thirteen cases, shared the affection with other joints, and principally with other joints of the upper extremity, the wrist excepted, in all the rest of the cases, except two. In three of the cases, where the affection was limited to one side of the body, or having begun, continued excessive, on one side, there were ovarian pain and tenderness on the same side, and a distinct frequency of neuralgia on the same side.

A further inspection of the cases brought out most interesting relations. Not only did the arthritis coincide with ovario-uterine affection, but, in a considerable proportion of cases, paroxysms of arthritis coincided with menstrual periods. This sort of parallel march was noted in fourteen cases, in one of which arthritis preceded menstruation as its regular herald; in seven, arthritis regularly accompanied; in two it followed; in two, it both accompanied and followed; and in two arthritis occurring in the intervals was relieved by menstruation.

Now, if these had been so many cases of dysmenorrhœa, the occurrence might perhaps have been accepted as an argument for believing the dysmenorrhœa token to be a part of a general rheumatic process. But, though the conjunction was reported in seven, it was conspicuously absent in as many cases; and these are precisely the instances which do most to prove that the arthritis is a product of the uterine hyperæmia. With this simple question we will deal for a moment, leaving the *modus operandi* to be discussed later on.

Among the seven cases referred to as not accompanied by dysmenorrhœa was that of a lady then 52 years of age. She had had a large family—in all twelve—and it was then as much as five years since she first began to suffer from arthritis. Before the arthritis troubled her, she had begun to experience excessive menstrual loss. She consulted, for this, a distinguished gynæcologist, who found the uterus enormously engorged, but otherwise free from disease. The engorgement was lessened by treatment, but not by any means cured, and the menorrhagia went on. The arthritis first came in the form of sharp inflammation and swelling of the knuckles of both hands, rendering them completely useless. It began usually on the second or third day of the menstrual flow, and continued as long after its cessation. The periods becoming more frequent and lasting longer as time went on, she became reduced to a very pitiable state. She was anæmic, exceedingly feeble, was crippled in hands, wrists, and knees, and lost her rest by reason of what she called "fidgets," uneasy but undefinable sensations in her limbs and abdomen, unaccompanied by pain or spasm.

Change of air and of scene, baths, tonics, alteratives, were all used, in addition to local remedies, but no relief was obtained till, as she reached the age of 50 years, the periods began to be less frequent.

At length, intervals of two or three months occurred, and allowed her to gain strength, when she lost her arthritis and her fidgets, and appeared perfectly healthy. Of late, the periods had been still further apart; but still, whenever the catamenia appeared, she was once more crippled.

The association of the arthritis with this painless menorrhagia began clearly at a time when the patient was weakened and drained of blood. The fidgets illustrated the irritability of the spinal cord, related with imperfect nutrition, and the arthritis came out as a resultant of two conditions: uterine irritation and spinal sensitiveness.

I may add that I have seen this lady within the last few weeks, not as a patient; that the catamenia have entirely ceased for three years; that she has had no joint-trouble since, excepting on one occasion, when it occurred in conjunction with severe intestinal catarrh; and that she is now ruddy, well-nourished, active, and cheerful.

A lady, aged 51, the mother of six children, came to me in 1882 with a gouty-looking inflammation in the elbows, wrists, hands, and knees. This had occurred a day after the return of the catamenia, previously absent for twelve months. She had no signs of gout in the shape of deposits, and her own expression was, that she felt the attack to be really "in the nerves." The period was short, and the arthritis disappeared. But the catamenia having since returned with unusual freedom and duration on two occasions, she had each time had the arthritis severely enough to cripple her. The arthritis came on at the end of the periods, the last of which was accompanied by abdominal pain, a circumstance hitherto unknown to her. I am now able to report of this case that the catamenia have ceased, and that the joint-affection is forgotten.

I might multiply my citation to a large extent, for the relation is illustrated constantly now that it has once been recognised.—*British Medical Journal, August* 2, 1884, *p.* 208.

16.—ON A FORM OF NUMBNESS, CHIEFLY OF THE UPPER EXTREMITIES.

By Dr. Wharton Sinkler, Philadelphia, U.S.A.

For several years I have observed in my service at the Infirmary for Nervous Diseases, in this city, and occasionally in my private practice, quite a large number of patients whose prominent symptom was numbness of the hands. The symptoms in these cases are quite regular and constant in their general characters. The patients are usually women, at about the change of life, although cases may occur in men.

The numbness generally begins in one or both hands and gradually extends up the arms. It may be felt in the feet and legs also. It is almost always most marked in the morning, before the patient rises. It is described as a "tingling," and "like pins and needles," or as if the limb "were asleep." One patient, in whom the numbness was felt in both upper and lower extremities, said she felt like a "sleeping fool." Notwithstanding the numbness, there is but little loss of feeling to touch or pain, and usually the compass points are distinguished as readily in the affected part as in other portions of the body. The numb member is weak, but there is no paralysis, and the weakness is transient. Often there is pain associated with the numbness. The patients sometimes think the hands are swollen at the time when the numbness is most marked.

Most of the patients were in good general health, but some were anæmic or overworked. The numbness in most instances was in both arms, occasionally it was found in all of the limbs, and in three cases in one arm alone. The ulnar and median distributions were most frequently affected. Pain was associated with the numbness in several patients. It was not an acute pain like neuralgia, but as one patient expressed it, like the pain which comes when a limb is getting over being asleep. Tenderness over the ulnar or median nerve was observed several times. There was usually some loss of power in the parts involved. The dynamometer showed several degrees difference between the hands in the cases when only one limb was affected. The duration of the affection was from a few months to several years. One of the patients had suffered from the disorder for two years before coming under observation, and at the end of a year and a half still had occasional attacks.

Dr. Weir Mitchell, in a lecture on "The Symptom Numbness," and later, in a chapter in his work on *Diseases of the Nervous System*, has described several varieties of numbness. Most of his cases were in anæmic or hysterical persons, and the symptom yielded under a course of treatment which tended to improve the nutrition and *morale* of the patients. He refers to cases in which the numbness came on during sleep, and remarks that this is a form "which belongs to the night." He finds that the numbness in the cases he has seen is frequently hemiplegic in character, and alludes to the fact that "some persons who have gotten pretty well of a hemiplegia of organic cause are liable to awaken out of sleep with numbness and lessened power of the side once palsied.

Dr. James J. Putnam, in a paper read before the American Neurological Association, treats at length of a series of cases of "paræsthesia mainly of the hands." He bases his paper upon the notes of thirty-one cases, and the description he gives resembles those which I have related. He finds that most of his patients were women, and almost all were in middle life, but he does not remark upon the fact that they were about the period of the menopause. Dr. Putnam suggests that the possible cause of the affection is, "alterations of the blood-supply of the smaller branches or terminal filaments of the sensitive nerves supplying the affected districts." The treatment of this writer consisted in the use of galvanism, phosphorus, strychnia, bromide of potassium, and several other drugs. He did not think that he had had sufficient opportunity to test the value of the different remedies, but seems to have found phosphorus of more value than any other one means used.

In several of my cases ergot gave marked relief. Dr. Putnam found phosphorus the most useful drug in his cases, but in one of those which he reports the remedy failed, and another was relieved by bromide of potassium.

From my experience in these cases, I should say that the prognosis in middle-aged women was not good for permanent relief. The numbness can generally be greatly benefited or stopped for the time, but it is liable to return. In those cases in which the trouble has been induced by overwork of the part, one can almost surely promise permanent cure if the cause can be removed.

With regard to treatment, as indicated above, ergot has proved the most useful medicinal means I have employed. Massage and spinal galvanism are always useful adjuvants, and so are all means which improve the general health. Bromide of potassium has helped some of my cases, and one patient was much benefited by sinapisms over the spine. It was found advantageous in most of the patients to give strychnia for a time after the disappearance of the numbness.—*Philadelphia Medical News*, *Aug*. 2, 1884, *p*. 132.

17.—ON THE TREATMENT OF CHOREA.

By E. Long Fox, M.D., F.R.C.P., Consulting Physician to the Bristol Royal Infirmary.

From the whole consideration of the pathology of the subject, we may conclude that chorea depends on imperfect nutrition of various centres of the brain and spinal cord.

It is evident from the study of the pathology and definite lesions of chorea, that, whilst one general principle, that of improving an impaired nutrition of nervous ganglia or groups of nerve cells, will underlie all variations of treatment, yet differences will arise according to the intensity of the symptoms, the special conditions that may threaten the fatal event, the nature of the positive lesion, the direct or reflex causation of the phenomena, the presence of acute rheumatism, and of various forms of heart disease, &c., &c. It is a matter, therefore, of ordinary experience that chorea minor will demand a treatment somewhat different from chorea major. The former, except under peculiarly unfavourable circumstances, has a natural tendency to get well of itself; but in saying this it is only fair to say also that it takes a long time to do so. Rest is a most important element in treatment: not rest in bed in these numerous minor cases, useful as it is in the most severe ones; but rest from excitement, from noise, from harsh words, from taking part in the struggle of life. In these respects even the wards of an hospital are a great advance on the ordinary home of the city poor; but I am far from advocating hospital wards, with their sights and sounds, as the best place for chorea. A private room, with a bright, cheerful nurse, is far more desirable. Then, too, the quantity and nature of the food should be such as the nervous system requires, mainly fatty and farinaceous material, at regular intervals, and taken with due deliberation; the spasm of the facial muscles often leading to bolting the food without proper mastication.

In my own cases at the Bristol Royal Infirmary I used cold affusion in the majority of cases of chorea minor for many years. The mode of using this remedy is of great importance, as too rough-and-ready a method materially injures the patient. If the child is brought with gentleness and coaxing to the bath, and care is taken that there shall always be warm water to stand in, it will scarcely ever be frightened at the cold affusion. The pouring cold water over them should be done rapidly, but never so unexpectedly as to produce a shock. This remedy has always seemed to me to be beneficial, except in one instance, where the patient, who had lost her brother by drowning, could never be persuaded that she was not about to undergo the same fate.

Of all the therapeutical remedies given in chorea, most observers seem to agree in the value of the mineral salts. A certain proportion of choreic cases are marked by anæmia, though I do not remember having seen any quite chlorotic. In the anæmic cases iron has often proved of signal benefit. Dr. Ringer says that in simple uncomplicated cases of chorea arsenic is far the best remedy. Its occasional non-success is sometimes owing to the undue smallness of the dose; and decided improvement often begins simultaneously with a freer administration of the medicine. When chorea has resisted smaller quantities, children may take four or five, or more minims of the solution. In one case, which rapidly improved, he quickly increased the dose, until the boy took twenty minims of liquor arsenicalis six times a day; and in another successful case the girl took fifty minims of the liquor daily.

Whether arsenic acts by increasing the power of the heart in moderate doses; whether in chorea, as in anæmia, it increases both the red and the white corpuscles, the exact opposite of its effect on the blood in health; whether its influence is primarily on the vascular system; or whether, as seems more likely, it acts directly as a nervine tonic, we are still in doubt. Nor, indeed, do we quite know how a so-called nervine tonic acts. Is it on the walls of the vessels, or on the nerve-cells themselves? I presume really on both, rendering the process of interchange by osmosis more facile. It is a matter of observation that females require larger doses of arsenic than males. The marked preponderance of the female sex affected by chorea is also recognised. Much as may be said in praise of arsenic in chorea, it is probable that the experience of the profession may militate against Dr. Ringer's doses, both as being in most cases larger than necessary, and certainly as not being invariably well-borne.

So far then the recognised treatment has been devoted to the general principle of improving impaired nutrition of the nervous centres. But certain complications may demand additional remedies; and of these complications perhaps insomnia is the most troublesome. For this large doses of morphia have been given, hypodermically and otherwise, and doubtless with good results. We, have, however, to remember that the majority of our patients are young, and that opium is not a comfortable remedy to use much with them. Very often, too, good results can be obtained by the bromides, by chloral hydrate, by hyosciamus, by camphor.

The treatment of *chorea major* is, however, not so straightforward. We have to deal not only with a more incessant and more violent jactitation, but almost invariably with some temporary mental weakness of the nature of imbecility, and with considerable incoordination of mastication, of swallowing, and of protrusion of the tongue. We have to trust to the resources of our art for giving us, in the treatment of this variety, that which we need so much in all diseases, the element of time.

Various sedatives may have to be used with a free hand. Opium and chloroform inhalation may be as useful in this form of the disease as they are generally unnecessary in the milder varieties. Cannabis indica, so strongly recommended by Corrigan, is a weapon not to be despised; and conium is beneficial.

And when the motor phenomena are peculiarly violent, and we fear not only great exhaustion, but the formation of general bed-sores, the process of waddling, as explained by Trousseau, has certain advantages. The carefully surrounding each limb with cotton wool, and then, with full allowance for free respiration, the binding the waddled limbs to the trunk, seems to modify some of the dangers of the disease. I can speak well of it in two or three instances. But almost every remedy must yield in importance to constant feeding. The advantages of this feeding in the Weir Mitchell system for treating hysteria, the immense benefits derived from it in the cure of mental diseases, will be equalled, and even surpassed, in the morbid condition we are now considering.

Seclusion is very specially necessary, The freedom from even the least excitement is absolutely requisite; and therefore in this variety the wards of a hospital are contra-indicated. As recovery progresses, much of the treatment recommended in the milder forms will be beneficial, and especially open-air exercise; but cold affusion is badly borne by the graver cases generally, although prolonged warm baths are useful.—*Bristol Med.-Chirurgical Journal, June,* 1884, *p.* 73.

18.—ON THE INFLUENCE OF DIET ON HEADACHE.

By Alexander Haig, M.A., M.B., Oxon., M.R.C.P.

It is no new observation that a dietary largely vegetarian will cure, or at least greatly relieve, the pain, and render less frequent the attacks, of megrim; but beyond a statement of the fact, I have been able to find but little in the way of explanation, and I therefore venture to think the following case may be both interesting and instructive, as tending to show that the headache and other phenomena are the result of a poison circulating in the blood, that that poison is a product of the process of digestion of certain foods, especially butcher meat, and that a cure is best effected by cutting off entirely the noxious food, and aiding the elimination of the poison by the kidneys.

A young professional man, somewhat over thirty, residing in London, the child of healthy parents, but with a distinct history of phthisis in certain aunts on the father's side, has suffered from headache as long as he can remember, and has distinct recollection of rolling on the floor in agony with one when about eight years of age. At college they were very troublesome, and have been so since in professional life.

[After relating the case, which however we omit as not in itself important, the writer continues:]

It was in the cold season, in the midst of much sedentary work, and having had two or three weekly attacks, that a strict vegetarian diet was first tried, with the immediate result that a whole month passed without any attack, there being no change of occupation or residence during that time. The diet was then continued more or less strictly for six months, through the cold half of the year, with the result that there were only one or two slight attacks in that period. Since then it has been found that a less strict diet will give practical immunity, and at present fish is taken twice a day, and an egg, or bit of fowl or game may be substituted for it. The only thing to be absolutely avoided is butcher meat, one meal of it at a friend's house being sometimes sufficient to bring on an attack. Beer, wine, and spirits, except very occasionally and in small quantities, are bad.

It was also found that two or three tumblers of hot water taken every night at bed-time gave increased immunity, and enabled him to take a little butcher meat occasionally without fear of an attack: the hot water was, I think, specially indicated by the scanty urine and disinclination for fluids, which were marked symptoms.

He found a little difficulty with the hot water at first, but he now takes it with pleasure, and says that he finds it more easy to drink three tumblers of hot water than one of cold.

Such, then, is the case and its history up to the present time; now to attempt an explanation of its symptoms and their cure.

Let us look at the symptoms in groups, and try to give them their true value. The uncertain appetite, slightly furred tongue, pain, heat, or weight in the right hypochondrium, with the excess of flatus and irregular bowels (I should have said that the fæces are at times somewhat deficient in bile, but there is never any jaundice) may be taken as indicating gastro-duodenal catarrh, with some little congestion of the liver. The slow pulse and low temperature seem to point to impurity of blood, and this impure blood will cause the contracted vessels and cold surface and extremities. As for the headache itself, at least when most severe, it seems to me to be due to congestion, the mass of the blood being driven inwards from the surface, first, because it is worst when lying flat in bed, and better when sitting bolt upright; and second, because getting the surface and extremities warm by the application of heat speedily relieves it. But it may be equally well or better explained by the condition of the arteries observed by Dr. Brunton in these cases, which consists in their being contracted towards their peripheral extremities, but dilated towards the heart, so that a large jet of blood comes forcibly against the contracted point and gives rise to pain; and this would both fit in well with the above-mentioned effects of posture, and also account for the throbbing which is so marked when the headache is severe.

We have then as our central factor the impure blood, which on the one hand causes the headache, and on the other hand is itself due to imperfection of digestive processes.

If additional evidence of blood impurity was wanted, it might be found in the marked relief obtained from the eliminant action of purgatives and diuretics, and the washing out of the tissues and blood by the hot water process: and on one occasion it was noticed that a single one of Martindale's nitroglycerine tablets sufficed to bring on at once an impending headache, possibly by preventing oxidation, which nitrites in the blood have been shown by Gamgee to do, and so making the blood still further impure.

As to the nature of the impurity in the blood, and its connection with the digestion of meat, there is no doubt that more than one explanation is possible, but the fact remains that this young man was for many years a martyr to headaches, and at times professional work and reading made life so much a burden that he had thoughts of giving them up entirely ; and all this in spite of advice and drugs, of which at one time he had plenty. Now he has been on this altered diet, from which butcher meat is conspicuously absent, for about eighteen months, and he has been practically free from his tormentor in spite of much sedentary work. He was unfortunately not weighed at the time the altered diet was begun, but he has not lost weight compared with what he was between two and three years back, and he is as active and feels as strong as at any period in his life.—*Practitioner, Aug.* 1884, *p.* 113.

19.—ON CASES OF UNSUSPECTED LEAD POISONING.

I believe that many are enduring wretched discomfort in a hopeless way owing to the unsuspected presence of lead in the tissues. I live in a country district where the subsoil is mostly sand and the water often tinged with iron.

Case 1.—Some years ago a gentleman who consulted me was surprised when I told him that he bore signs of lead poisoning. He was still more surprised when I found blue gums on his wife and the two maid servants. There was a leaden pipe from the well in the garden to the pump in the house. He was not contented till he got an independent analysis of the water, when the workmen were speedily called in. Now, this gentleman had been about a year in his house, and his predecessor, who had been attended by a medical friend of mine of well-deserved reputation, suffered miserably for years from stomach disease, presumably cancerous. I had the curiosity to request my patient, who was acquainted with his predecessor, to inquire into his present state of health, and the reply was that since leaving he gradually had become cured.

Case 2.—At a country house where I attended the butler's wife lived in the lodge. Now, she had been in wretched health for some time, and for reasons of her own had not chosen to speak to me, but had paid visits at intervals to the county town, to consult a practitioner of acknowledged eminence. The final diagnosis arrived at was "cancer of the stomach." After some time the lady of the house learned this distressing state of matters, and asked me to see the poor sufferer. Having been told by her husband that she had given up going to her former adviser, I visited her and found bad signs of lead. In this case an iron pipe led from the well into a large slate cistern, and from the cistern to the house the pipe was also iron; but a very long leaden pipe went from the cistern round the court and ended in a tap at the stable door. From this tap the butler's wife drew her water early each morning. This patient, I think, would have soon died. As the water was supposed to agree with the horses, the pipe has not been removed, and, the house having changed hands, I have had two separate cases of lead colic afterwards from it—one a coachman, the other a visitor at the coachman's house.

I have had a number of cases similar to the above, and I wish I could say I have always been prompt in detecting them. One honest labourer, who had kept a situation for over thirty years, all the time in hopeless misery, suffering from "rheumatism," "indigestion," &c., got rid of it all after a few months of water from a neighbour's well.—"RUSTIC," *Lancet, June* 28, 1884, *p.* 1182.

20.—ON CANNABIS INDICA (INDIAN HEMP).

By Drs. MATTHEW HAY and MERCK.

[In the Pharmaceutical Journal, 1883, the following preliminary notice of a chemical investigation of this drug by Dr. Matthew Hay was published.]

Cannabis indica, or Indian hemp, is exceptional as a narcotic plant in respect of no alkaloid, possessing the action of the plant, having been as yet separated from it. The so-called cannabin obtained by T. & H. Smith, of Edinburgh, many years ago, and said by them to possess the active and narcotic properties of the cannabis, is certainly not a pure principle, and is, probably, a mixture of resin with varying proportions of the narcotic principle. It possesses almost solely the characters of a resin, and is described by the Smiths as such; but were it the true active part of the plant, it is certainly far removed from all other narcotic principles, inasmuch as none of them is chemically related to the class of resins. One specimen of cannabin which I obtained some time ago from Merck, of Darmstadt, and which, I was given to understand, was prepared exactly according to Smith's process, possessed little or no narcotic action.

A few years ago, Preobraschensky made a chemical examination of a quantity of haschisch which he brought with him from China, whither in 1873 he had accompanied an expedition, and was enabled, according to his own statement, to separate from it a volatile alkaloid, which he held to be identical with nicotine, and which he believed to be the active part of cannabis. This, in view of the distinctive and very different action of cannabis, was somewhat remarkable. It is highly probable, as has been suggested by Dragendorff and Marquiss that the haschisch used by Preobraschensky was mixed with tobacco, which it often is in Eastern countries.

Recently Louis Siebold and Bradbury reported to the British Pharmaceutical Conference (1881) that, after an elaborate investigation, they had arrived at the conclusion of Dragendorff and Marquiss, and that in the course of their investigation they made the interesting discovery that pure cannabis does actually contain a volatile alkaloid, which does not, however, possess the characters of nicotine. They separated it in very small quantity, obtaining not more than two grains from ten pounds of Indian hemp. They give to it the name of cannabinin. They record no observation as to its physiological action; and they, therefore, leave it doubtful as to whether this volatile alkaloid is the narcotic principle of cannabis.

It is evident from these and many other researches that it is no easy task to arrive at correct conclusions as to the active principle of cannabis indica. A considerable time ago, I commenced a chemical examination of this drug, at the suggestion of Prof. Schmiedeberg, of Strassburg, the results, so far, of which lead me to believe that cannabis indica contains several alkaloids. In a future communication I hope to be able to give an exact description of the distinctive characters and toxic action of each. In the meantime I shall content myself with the description of one which I have obtained in a considerable degree of purity, and one which, rather remarkably, possesses an action similar to that of strychnia. It is evidently, therefore, quite a secondary alkaloid of the cannabis, and reminds one of the thebaine of opium.

This alkaloid was obtained from a watery infusion of powdered cannabis indica by treating it with a solution of subacetate of lead, and filtering. To the filtrate was added ammonia, and the precipitate removed by filtration. The filtrate, acidulated with sulphuric acid, was now treated with a solution of phospho-wolframic acid in order to precipitate the alkaloids present. The precipitate, which was fairly abundant, was, after the fluid had been removed by filtration and washing with dilute sulphuric acid and pressing, mixed with barium hydrate and water, which formed an insoluble wolframate and set free the alkaloids. The filtrate was now deprived of its excess of barium by means of a stream of carbonic acid gas and again filtered. The filtrate was at a gentle heat evaporated almost to dryness and acidulated with sulphuric acid and treated with absolute alcohol. The sulphate of the alkaloids thus formed was partially soluble in alcohol, partly not. It was from the soluble part that the alkaloid in question was procured. The sulphate was converted into a chloride by treatment with barium hydrate, afterwards with carbonic acid to remove excess of barium, and, finally, with hydrochloric acid to neutralisation. The chloride was evaporated and treated with absolute alcohol, in which it in part dissolved. From the solution, by addition of excess of carbonate of soda and frequent shaking with ether, an alkaloid was obtained in the form of colourless needle-like crystals.

The alkaloid was easily soluble in water, soluble also in alcohol, and more slowly soluble in ether and chloroform. It caused tetanus in frogs in exactly the same manner as strychnia, increasing the excitability of the reflex centres of the spinal cord. It did not give a violet colour with sulphuric acid and bichromate of potash. It was, therefore, although similar in action to strychnia, not chemically identical with it. A solution of it in water was precipitated by the various alkaloidal precipitants, platinic chloride, iodide of potassium and mercury, phospho-tungstate of soda, phospho-molybdic acid, phospho-wolframic acid, &c.

Although I obtained the alkaloid from 1 kilogram of cannabis, yet the quantity of it was so small that it was insufficient for an elementary analysis. To this alkaloid I propose to give the name of tetano-cannabin as indicative of its action.

[In a later number of the *Pharmaceutical Journal*, MERCK, replying in self-defence to Dr. Hay's remark, takes occasion to mention that he has in his price-current two entirely different preparations from cannabis indica—viz., firstly, *cannabin*, being the ordinary commercial resin from Indian hemp; and secondly, *cannabin. tannic.* (Merck). He says:—

The first cannabin mentioned, and described by Dr. Hay, is a resinous body which, from long custom, still goes under the name of cannabin, but the action of which, as I had long since discovered, is far from being certain or reliable. In consequence, I have made it the study of many years to isolate the active principle of the Indian hemp—a task in which I have, I flatter myself, after very considerable labour and trouble, succeeded. This is the cannabin. tannic. (Merck) referred to above, and which glucoside has nothing whatever in common with the ordinary resinous cannabin. A series of experiments, as to the effect of my cannabin. tannic. has been made, and I give here a few extracts from my report on "New Remedies," of February, 1883, on the subject:—

"*Cannabin. Tannic.* (*Merck*).—The preparation which I introduced under this name is a glucoside contained in Indian hemp, combined with tannin. Endeavours have been repeatedly made to discover and isolate, in a form suitable for medicine, the active principle of this plant, which has long been treasured for its medical properties. A cannabin has long been in vogue, which, however, under this name, was really little more than a very pure extract of cannabis indica. After numerous experiments, involving much time and trouble, I succeeded in producing this new preparation, which in the very short time of its existence has gained for itself a considerable reputation. As already mentioned, this cannabin is of a glucoside nature, and resembles, in its chemical comportment, solanin and allied preparations, in that it shows an alkaloid reaction. The combination with tannin has been chosen in order to give to the glucoside, which is of a nature very liable to decomposition, a handy and durable form.

"The action of cannabin. tannicum is narcotic—viz., soothing and soporific, without any bad after effects, as is often the case after the use of morphia and other opiates. With regard to its practical use, Dr. Fronmüller says:—'The patients to whom this cannabin was administered were afflicted with almost every variety of disease, and were at the same time suffering to a high degree from nervous sleeplessness, for which they had nearly all taken opium or morphia without effect.'

"The dose of cannabin. tannicum varies in different cases from 0·1—1·5 gram, but the most usual was 0·2—0·5 gram. administered, as a rule, at about half-past nine in the evening. Only in the case of very large doses, 1·0 or 1·5 gram (in the case of very delicate individuals, also, naturally, with smaller doses), were appearances of unconsciousness occasionally observed, which, however, quickly disappeared on the use of acetic ether. Most important is the fact, that neither were the digestive organs in any way affected, nor retarded motion of the bowels produced, as is generally the result from the use of other opiates.

"Dr. Hiller (Charité Berlin) also referred to my cannabin. tannic., and his observations agreed with those of Dr. Fronmüller. He described it as a mild and agreeable hypnotic, especially in cases where morphia cannot be administered on account of unfavourable after-effects of the latter drug on the patient. It also appears that the use of cannabin. tannic. will have a very large and important field in asylums for the insane. I am indebted to Dr. Karrer, of the Kreisirrenanstalt Erlangen, for various communications, according to which highly satisfactory results were obtained with my cannabin. tannic. in cases of excited and restless lunatics.

"In the interest of myself, and also of others, I deem it advisable to give publicity to the above, inasmuch as Dr. Hay does not seem to be acquainted with my cannabin. tannic., to which he does not in any way refer."—*Dublin Journal of Medical Science, October, p.* 317.

DISEASES OF THE ORGANS OF CIRCULATION.

21.—ON INTERMITTENT PULSE, AS A SIGN OF DISEASE, AND ITS TREATMENT.

By the Editor of The Asclepiad.

This affection is due to nervous exhaustion of the vital nervous system, and in this day of emotional strain and excitement it must prevail in proportion to the causes of it. In itself, when it is not present in an exaggerated degree, intermittency of the pulse is often less dangerous than it seems. It does not, as might be feared, carry with it the necessary idea of sudden dissolution from heart disease, for, as I have elsewhere shown, the heart is the regulator, not the prime mover, of the circulation. The harmlessness of the symptom in its moderate development is best shown by the facts of its common occurrence after middle age, and by the long duration of life in many of those who present it.

Occurring in young adults, it tells the story of commencing failure of power. Occurring suddenly after any great event, which has told upon the mind, it may be a sign of serious import. In persons advanced in life, and in persons prematurely old, intermittency is often the herald of symptoms of nervous failure. In these examples the patient has sometimes a singular preconception of impending danger.

In the large majority of patients there is an unconsciousness of the intermittency. We listen to the heart, we hear the phenomenon distinctly; we ask the patient, at the moment, whether he is conscious of feeling anything peculiar; he tells you he is not. In such instances, the intermittent phenomenon does not cover more than what would be one or at most two natural periods of cardiac contraction, and there is a long interval before the return of it. But when the intermittency covers a period equal to five normal strokes, or when it is repeated in shorter periods several times in the minute, then the patient is painfully, often fearfully conscious of the fact. Then breathing becomes irregular, then there is difficulty in keeping the recumbent posture, then there is sleepless agitation, terrible mental depression, a constant dread of death, sometimes with a singular longing for that event, and finally, death itself, not suddenly, but by a lingering and sinking asthenia. I have seen one well-marked case, in which it was impossible to attribute death to any other cause than intermittent cardiac action, and I do not remember any case where the symptoms, which long preceded death, were more acutely painful.

Persons in whom there is permanent intermittent action of the pulse pass through all acute diseases with less chance of recovery than others of similar age and like constitution who have no such failure. They sink more readily from surgical operations, from falls and injuries, from influenza, from acute congestion of the lungs, from inflammatory attacks, and particularly from typhus and typhoid fevers. I would look upon a man's chance of recovery from typhoid if he were fifty years of age, and had a steady heart, as preferable to that of another man at forty, in whom intermittent action of the heart was developed before the occurrence of the disease, or in whom the symptom came on, as it sometimes does come on, in the course of the disease.

In adults, when the symptom is once established, it never, I believe, goes away entirely. It may be absent for long periods when the general health is good, but it returns on every occasion of depression of power, and is very easily re-induced by agencies which act deleteriously on the nervous system. Excessive venereal gratification, excessive smoking, deficiency of sleep, or dissipation, act powerfully in increasing the evil. In persons at or past middle age, the symptom, if it once be fully developed, continues persistently, and often to extreme old age. One of my patients, who died at eighty-six years of age, told me he had been discovered to have an intermittent pulse when he was forty-two, and that he had never failed to exhibit the phenomenon since that time. I have noticed often the hereditary character of the phenomenon. On the fact of heredity, there can, I think, be no doubt.

There is no known specific treatment for intermittent pulse, but whenever the symptom of intermittency is present, there are certain general lines of treatment which should always be enforced by the physician. In the case of young children, when the intermittency is clear, however infrequent it may be, the utmost care should be taken to avoid every source of mental emotional excitement. A child having intermittent pulse should not, under any pretence, be oppressed with study.

He should not be subjected to any amusements which powerfully excite the mind; he should not at any time be exhausted by physical fatigue; he should be well fed, warmly clothed from head to foot, and above all things, should be allowed to have abundant sleep. Ten to twelve hours' sleep is not a moment too much. Moreover, such a child should never be put to sleep with stories which excite dreams or cause alarm. In adults, equal care should be taken, and above all things, attempts should be made to remove impressions derived from any untoward event. Change of scene should be recommended, while a carefully regulated diet, abstinence from exhausting pleasures and abstinence from exhausting labour, especially mental labour of any one particular kind, should be encouraged. Good sleep is here again the most valuable of remedies. Eight hours of sleep out of the twenty-four are essential, nine hours are still better. Two other special points of advice are of moment. It not unfrequently happens that, by accident or by direct information, patients learn the fact that their pulse intermits. Then they begin to feel their own pulse, and become charged with dread of sudden death. As the disorder is of itself mental, this watchfulness and fear will increase the frequency of the intermittency. With these patients, a word from the physician, timely and firmly spoken, is often the best prescription. He assures them, on the results of experience, that their malady is not of necessity fatal; he recommends them not to enquire after the symptom, and if he can succeed in persuading them to his views, which he may honestly try to do with all his influence, he will effect the most marked improvement in their condition. Again, it sometimes happens that patients conscious of the failure of the heart resort to alcoholic stimulants as a means of relief. For a moment, by its exalting the activity of the heart, alcohol affords relief, but the depression that follows calls the more rapidly for a return to the supposed remedy, and a fictitious benefit leads to a habit which excites structural changes and hastens death. Concerning aged people who suffer from what may be called chronic intermittency without consciousness of the symptoms, no special rule requires to be laid down. They are themselves usually too tired of the excitements of life to care for them, and if they are not, then the observance of the general principles applicable to children and adults extends equally to them.

Whenever with intermittency of the pulse there is anæmia with inactive condition of the bowels, and distention of the stomach and intestines with gas, it is very good practice to add, to the general rules of treatment, "a tonic," so called, and of all tonics Easton's Syrup of the Superphosphate of Quinine, Iron, and Strychnine, is one of the best. This syrup, which contains the thirty-second part of a grain of strychnine in a fluid drachm, should be administered in doses of a drachm three times daily, a little time after food, and the patient should be induced to look upon the remedy in the light of a food rather than a medicine. The syrup, under the careful observation of the practitioner, may be continued for two or three months at a time without danger. When there is much restlessness with the intermittency, as well as want of power, I am accustomed to administer one or other of the bromide syrups. The syrups of the Bromide of Iron, Quinine, and Strychnine, or of the Bromide of Iron and Strychnine, or of Quinine and Strychnine without the Iron, replace Easton's preparation very effectively. The dose of these syrups is one fluid drachm.

There are classes of cases in which intermittent pulse is connected with great general prostration and premature breaking up of the body; cases in which there is some organic disease, such as chronic bronchitis, emphysema, senile phthisis, chronic degeneration of the kidney, or other organic change; or some general systemic disorder, such as diabetes or cancer. In any of these cases the intermittent action is a terrible addition to the distress of the sufferer, and it may require to be treated itself as the worst present evil.

I have made many inquiries in order to ascertain if there be any one particular remedy which so influences the nervous mechanism of the heart as to exert an immediate controlling effect over intermittent action. The result of my research is that there is only one agent which can be said positively to influence it effectively; I mean to influence it *at once* in such determinate manner that an effect is seen to follow upon a cause. The agent to which I refer is alcohol, and the mention of alcohol brings up the whole question of its use in cases of intermittent action. In intermittent pulse this direct action of alcohol on the heart is shown with singular effect. I have seen in an extreme case, where the fact of intermittency was recorded ten times in the minute at least, a total cessation of the phenomenon within five minutes after the administration of six fluid drachms of pure alcohol in water, the circulation at the same time being rendered more rapid. This action of alcohol is so decisive that the patient himself soon becomes conscious of it, and unfortunately resorts sometimes to the remedy, to his ultimate disadvantage.

Contrary to what I originally taught, I now recommend that the sufferer from intermittent pulse should abstain from every alcoholic drink known as a common drink or beverage. At the same time I would not withhold the occasional use of alcohol in extreme conditions, or what may be called emergencies. If after great fatigue or excitement or anxiety, there is sleeplessness, restlessness, and painful knowledge, on the part of the patient, of the hesitation of the circulation, half a fluid ounce to six fluid drachms of pure alcohol, mixed with warm water, will act, generally, in the most effective manner. It will bring rest, and often sleep. But it must be repeated only after an interval of seven or eight hours; if it be carried to the extent of producing the third, paralysing or narcotic, degree of alcoholic stimulation it will have conferred evil instead of good.

In some instances, instead of prescribing common or ethylic alcohol, I substitute pure methylic alcohol. This is a much lighter spirit, and is eliminated more quickly from the body. The dose is the same as for common alcohol, and may be prescribed in precisely the same way, with the advantage that it may be more frequently repeated than the same dose of ethylic alcohol. It will be seen from these observations that I recommend the use of alcohol purely as a medicine. I do so most earnestly, under the conviction that whenever it is more than a medicine, it is far more harmful than useful.

Tea does not produce intermittent pulse, but when the symptom is present it very seriously increases it; tea, in short, is an article of diet which in all cases of irregular action of the heart should be scrupulously avoided. Coffee is less objectionable. Food should be taken by sufferers from intermittent action in moderate quantities and *frequently*. Long fasting is unspeakably prejudicial, and makes itself speedily felt by the patient, who suffers, while fasting too long, from an indescribable exhaustion, which is not hunger and not faintness, in the natural sense of those terms, but a strange mixture of both sensations with a frequently recurring impression that if food do not immediately come death must. The nervous supply of the heart in these cases is sensitive to the least failure of power, and requires renewal every three or four hours during the working day. At the same time, the system rebels against a large, oppressive meal, difficult of digestion. Care should be taken, also, to protect the body from damp and wet. In a word, every such provision should be made as will sustain equality of the vital processes, so that the nervously disabled heart may neither wait long for new support nor be overtaxed with work.

[In our experience intermittent pulse in middle life is almost always connected with anxiety—usually pecuniary or business anxiety.—Eds.]—*The Asclepiad, July*, 1884, *p*. 193.

22.—ON BEER-DRINKING AND HEART DISEASE.

Bollinger, at a recent meeting of the Aerztlichen Verein, in Munich, called attention to the part played by beer-drinking in the causation of certain forms of heart disease. The records of the Pathological Institute of Munich show that idiopathic hypertrophy of the heart is of much more common occurrence in that city than elsewhere. The observations of several local pathologists confirm this statement.

Von Buhl regarded these hypertrophies of the heart without discoverable cause, such as valvular lesion or arterial sclerosis, as the result and product of a chronic myocarditis, which usually ended fatally in consequence of fatty degeneration of the muscle. Under the influence of this teaching, and because the patients, as a rule, enter the hospital and die with symptoms of failure of the heart, this form of hypertrophy came to be generally regarded in Munich as the result of an inflammatory process. Bollinger, finding, in most of the cases, no anatomical evidences of inflammation, and just as seldom fatty degeneration, cannot accept this view, and regards the hypertrophy as simple, or idiopathic. Certain of these cases of idiopathic hypertrophy of the heart were, perhaps, to be accounted for by prolonged excessive muscular effort and bodily strain. But the greater number, as was determined by carefully worked-out personal investigation, particularly among suicides, were explicable only by habitual excesses in beer-drinking in connection with a true plethora, the existence of which has, however, been of late denied by a majority of physiologists and pathologists.

The habitual consumption of beer in excessive quantities tends to hypertrophy by the direct action of alcohol upon the heart, by the enormous amount of fluid introduced into the body, and by the easily assimilated nutritive constituents of the beer itself. Furthermore, such habits are often associated with great bodily activity and an at least relatively luxurious manner of life. The average weight of the normal heart in men is relatively greater in Munich than elsewhere, a fact, without doubt, dependent upon the excessive consumption of beer in that city. The characteristic changes in the form of hypertrophy under consideration consist in the participation of both sides of the heart, and in an enormous increase in the volume of the primitive muscular elements, with enlargement of the nuclei. Whether or not actual numerical increase in the muscular fibres takes place cannot be known.

Many individuals addicted to such excesses attain an advanced age notwithstanding cardiac hypertrophy, by reason of constitutional peculiarities, an active open-air life, or an enforced moderation, but the greater number perish after brief illness with symptoms of cardiac failure. The condition of such subjects not rarely amounts to a true plethora of the most typical kind, such as is seen among the drivers of beer-waggons and workers in breweries in this country.—*Philadelphia Medical News, July 5*, 1884, *p.* 11.

DISEASES OF THE ORGANS OF RESPIRATION.

23.—ON THE TREATMENT OF CATARRH OF THE RESPIRATORY PASSAGES—ACUTE NASAL CATARRH.

By I. BURNEY YEO, M.D., F.R.C.P., Physician to King's College Hospital.

Nowadays a "catarrh" means an abnormal increase in the secretion of any mucous membrane, due to hyperæmia, or inflammation of the same. This inflammation may be *acute* or *chronic*, slight or severe, a mere passing irritation, or a more or less permanent malady. So that we now not only speak of *nasal*, *pharyngeal*, *laryngeal*, and *bronchial* catarrhs, but also of gastric, duodenal, and intestinal catarrhs, catarrh of the bile ducts, and also of vaginal, urethral, vesical, and uterine catarrhs; meaning in all these cases an inflammation (or hyperæmia) of a mucous membrane, attended with an increase of or a modification in, its natural secretion. For the present we are only concerned with catarrhs of the respiratory mucous membrane, and first of all, we shall consider the occurrence and management of that very common and often distressing form of catarrh which is variously termed "coryza," "rhinitis," "nasal catarrh," or more commonly "cold in the head,"

I need scarcely tell you that the lives of certain persons are troubled by a tendency to constantly "catch cold," as it is termed. I regret to say I am myself not free from this predisposition. But it is a curious fact that while some persons have a proneness to become afflicted with nasal catarrh, others will exhibit a tendency to pharyngeal catarrh, others to laryngeal, and others to bronchial catarrh. There are persons who are frequently the subjects of nasal catarrh, and even of laryngeal catarrh, but who never suffer from bronchial catarrh; and conversely, there are many who, although frequently the victims of bronchial catarrh, never suffer from nasal or laryngeal catarrh.

In my own personal experience, I find a nasal catarrh will, if neglected at its onset, occasionally extend into the larynx; but it stops there, and has never yet extended lower along the respiratory passages. To antagonise this predisposition to catarrhs of the air passages, is an important consideration in their management. So also is the possibility of their spread by contagion. It is a popular belief that "colds in the head" are catching; and it certainly is remarkable the way in which they run through families and households. Some account for this by assuming the existence of an "epidemic" influence associated with meteorological conditions, and no doubt these affections are at times epidemic, but they frequently occur and spread through families when their origin and extension cannot be so accounted for. Fraenkel remarks that he has often observed bridegrooms who have never before suffered from coryza, become attacked by this malady on marrying brides who have been prone to such attacks!

The chief cause of nasal as well as of other catarrhs of the air passages is no doubt the existence of an undue impressionability of certain portions of the surface of the body to even slight changes of temperature. Also the extreme excitability of the nasal mucous membrane in some persons to the contact of certain substances is a well-known cause of catarrh. The pollen of grasses and other plants produce in some persons distressing attacks of so-called "summer catarrh" or hay fever." The perfume of a rose has been known to have the same effect, and I have seen the most distressing attack brought on by turning over the leaves of a book that had long been undisturbed on the library shelves.

The treatment of acute nasal catarrh may be conveniently considered under three heads: 1. Prophylactic treatment. 2. General remedies. 3. Local remedies.

(1) *Prophylactic Treatment.*—The predisposition to suffer repeatedly from attacks of coryza may be greatly diminished by suitable prophylactic measures. The most important of these is the adoption of some hardening process which shall have for its object the removal or diminution of a certain hyper-sensitiveness of the skin and mucous membrane which characterises such patients. Avoidance of sedentary habits and free exercise in the open air are of great value. Cold affusion over the head and neck, begun in warm weather and steadily maintained throughout the whole year, is of undoubted efficacy. The use of the *shower-bath* for this purpose has been strongly advocated, but there are not many persons who can tolerate a cold shower-bath all the year round, but most persons can bear two or three large spongefuls of cold water wrung out over the head and neck on first rising in the morning. This process imparts contractile vigour and tone to the superficial vessels and counteracts the tendency to vascular dilations and hyperæmia, upon which catarrhal conditions mainly depend.

A tendency to nasal catarrh and to other catarrhal states is excited and maintained by residence in low-lying, damp, cold situations; and it is hopeless to endeavour to relieve, permanently, such conditions while the subjects of them continue to dwell in these localities. It follows that one of the best prophylactic measures against attacks of nasal catarrh is residence in a dry, bracing locality. No measure is perhaps so efficacious, as a preventitive to such attacks, as a few weeks' residence in a high, open mountain valley like that of the Upper Inn in Switzerland. I have myself experienced this in a remarkable degree. The dry, cold, bracing air of this region seems to be of especial value in lessening the morbid sensitiveness of the surface, so far as it tends to the production of catarrh of the respiratory tracts. I believe it acts partly by causing contraction of the superficial vessels and increasing their tone. It is quite otherwise with respect to the tendency to suffer from rheumatic pains when exposed to atmospheric vicissitudes. In such cases the climate of the Engadine generally aggravates the rheumatic tendency; and this it probably does by checking cutaneous transpiration. (I have entered fully into this subject in some of the chapters in my work on "Health Resorts and their Uses.")

Next in value to mountain air, as a prophylactic, is well-directed sea bathing, during the summer months, associated with abundant exposure to the open air of the seaside. Such patients should not be allowed to remain long in the sea at one time; it is better they should make repeated plunges, for it is the bracing shock to the surface that is required, not the continued contact of the cold sea-water. At Biarritz they have a plan of standing just ankle-deep, or but little more, in the sea, and allowing the Atlantic surf as it comes in to dash over them. One of the best natural douches that can be imagined. Persons who suffer from summer catarrh or "hay fever," are often immediately relieved on removal to the sea coast. This treatment of combined sea-bathing and sea-air is of the greatest value to scrofulous children, who frequently show a tendency to attacks of nasal catarrh, which sometimes become chronic, and give rise to much trouble; for chronic nasal catarrh in scrofulous subjects is a most obstinate malady, and one difficult to treat with success.

(2). Next with regard to *General Remedies.*—Of all the general remedies advocated for the cure of attacks of coryza, opium or morphine is by far the best. I have again and again tested its value, and often in my own person; and if it fails to cure or cut short a cold in the head, it at any rate takes from it all its terrors! Opium undoubtedly exercises a remarkable effect over the capillary circulation, especially in the respiratory mucous membrane, and I have often known a single dose of opium completely arrest a catarrhal fluxion from the nose, which, from its abundance, entirely prevented sleep, and this in fifteen or twenty minutes.

But it is by no means a matter of indifference what method you adopt in administering the opium. When you are able to treat the cold quite in its initial stage, when the nasal mucous membrane is only a little swollen and dry, and there is an uneasy feeling over the frontal sinuses, and before the occurrence of any great amount of fluxion, the following I believe to be the best method:—Supposing the patient to have had a good meal in the middle of the day, no more solid food should be taken that day, but about three or four hours before bedtime an eighth of a grain of acetate or sulphate of morphine (I use McKesson and Robbins' pilules of this strength) should be taken with a small cup of weak tea; and at bedtime another eighth of a grain with a wine-glassful of whisky and water.

This measure alone will constantly arrest a cold in the head if adopted in the initial stage; and even when this stage is passed, it will relieve all the uncomfortable distressing feelings which attend these attacks. Yet you will often find it fail; but it fails because both patients and doctors will not attend to small details. If you do not caution your patient to the contrary, he will probably eat a heavy evening meal, following the old-fashioned maxim of "feeding a cold," and take his dose of morphine on a full stomach. Now it makes all the difference in the world whether this small dose of morphine be absorbed into the blood in a few minutes, or whether it be mixed with a mass of food and absorbed slowly with it after some hours. The result in the two cases is wholly different. In the first case you have a definite quantity of your remedy immediately absorbed into the blood and circulating with it; in the second, your remedy is slowly absorbed in indefinite quantity, and there is no reason that I know of why some of it should not pass out of the body in the residue of the food with which you have allowed it to be mixed!

When the initial stage is passed, and the nasal fluxion is thoroughly established with a distressing feeling of oppression and stuffiness about the nasal passages and frontal sinuses, I have found the following diaphoretic draught, containing opium, to be of the greatest use. I have taken it myself and given it to others for many years:—℞. Liquor. opii sedat. ♏xv; vini ipecac. ♏ v; sp. ætheris nitrosi ʒ j; liq. ammoniæ acet. ʒ iij; aquæ camphoræ ad ℥ i ss. To be taken at bedtime.

If the patient is able to keep to the house, and better still, to one moderately warm room for a day or two, a single dose of this kind will not infrequently remove all the catarrhal symptoms permanently as well as immediately. But although it will surely give immediate relief, yet, if the patient exposes himself to changes of temperature the next morning the catarrhal condition will frequently return. Opium given in this form is not attended by the unpleasant effects generally found to follow its administration in the crude, solid form, such as headache, nausea, loss of appetite, &c.

Some feverishness and slight rise of temperature frequently accompany these attacks, and in these, and indeed in all cases of the kind we are considering, we shall do wisely to give quinine in doses of one to two grains, three or four times a day. It is a valuable adjunct to the opium treatment. I am accustomed to give it in effervescence in the following form, which seems agreeable and refreshing to patients:—℞. Potassæ bicarb. gr. cxx.; ammoniæ carb. gr. xxxii.; syrupi aurantii ʒ iv; aquæ ad ℥ viii. M. ft. mist.—℞. Quiniæ sulph. gr. ix.; acid citrici gr. cxx. In pulv. vi. One of the powders, dissolved in water, and mixed with a sixth part of the mixture, to be taken three or four times a day.

In children and young people, when an attack of coryza is attended with decided feverishness, and particularly if the throat is involved, and its mucous membrane is found red and swollen, great benefit will follow the administration of a few doses of aconite. Indeed, aconite is extremely valuable in all the ephemeral and symptomatic fevers of children and young people. I am in the habit of using Schieffelin's pilules of Duquesnil's aconitine $\frac{1}{480}$ gr. in each. I give one of these every two hours for three doses, and stop. Or you may give from one to three minims of the tincture (according to the age of the patient) every hour for three or four doses, and stop. My own experience of aconite teaches me that it is a drug which either produces an immediately beneficial effect, or is of no value. It is also a drug which is of much value in the initial stage of many febrile maladies, but of little or no use in advanced stages. I should advise you, with regard to the internal use of aconite, to adopt this rule: give it only in a few doses at a time, and in the initial stages of disease; never increase this dose largely, with the hope of obtaining better results from a large dose than you have been able to get with a small one. It is of more apparent benefit in throat catarrhs than in nasal or laryngeal catarrhs. I should rely, in the treatment of acute coryza, rather on opium and quinine; but in children, and in persons who cannot take opium or quinine, you may give aconite, in the way I have stated, with advantage.

Camphor is a popular remedy for coryza; a few drops of the spirit of camphor, dropped on sugar, or taken in water, every half hour, will in certain persons arrest a cold in the head, if taken in the initial stage; but it is useless when this stage is passed, and not to be compared in efficacy with opium or morphia, given in the manner I have enjoined. Several cases are on record of poisoning by so-called homœopathic tincture of camphor, taken, in repeated doses, for this purpose.

Then there is what is called the *dry* cure, which was introduced by Dr. C. J. B. Williams. It consists in stopping the supplies of all liquids; and so, by not adding any water to the blood, while the system withdraws from the blood the fluid required for the natural secretions, the quantity of fluid in the blood vessels is diminished and the local hyperæmia thereby lessened. The catarrh ceases because the supply of fluid to the blood is cut off! The amount of fluid permitted was a tablespoonful of milk or tea with the morning and evening meals, and a wine-glassful of water at bedtime. But this has never been a popular method—the remedy appearing to many persons worse than the disease.

(3) Lastly, we have to consider the action of *Remedies applied Locally*. It is rarely necessary to apply any local treatment to acute nasal catarrhs. Such treatment is more useful in the chronic forms of catarrh.

A common and popular method of attempting to cut short an attack of coryza is to inhale the vapours given off by a mixture of ammonia, carbolic acid, and rectified spirit. This mixture is dropped upon some absorbent substance introduced into a bottle and the vapour given off is inhaled by the nostrils. When there is much distress from swelling and dryness of the nasal mucous membrane, relief may be obtained by the inhalation of moist soothing vapours; the vapours of hot water, or of infusion of camomile, or of elder flowers, or of the decoction of poppy heads. These vapours may be inhaled from the orifice of a narrow-mouthed jug, which together with the mouth and nose of the patient are covered with a towel, or they may be conducted directly to the nostrils by an india-rubber tube connected with the steam-generating apparatus.

When the secretion is profuse and the nostrils feel blocked up, benefit is sometimes obtained by the application of a warm spray of a weak solution of common salt or carbonate of soda (2 to 6 grains to the ounce), or Ems Water, for a quarter of an hour at a time, four or five times a day. Some have strongly recommended the snuffing up of a powder composed of bismuth, tragacanth powder and morphine, in the early stage of nasal catarrh. But many persons object strongly to the introduction of a sticky powder into the nostrils.

You will often find during or after an attack of acute nasal catarrh, that the catarrhal condition will extend into the pharynx and spread not unfrequently to the mucous membrane of the upper part of the larynx. The patient will then complain of an uncomfortable feeling in the throat, especially in swallowing his saliva, and he will often also be tormented by a troublesome tickling cough. This cough is generally aggravated during and after meals, and is particularly annoying on lying down in bed at night. On looking into the throat you will usually find the soft palate and uvula somewhat relaxed, a spongy aspect about the tonsils, and the mucous membrane of the pharynx redder than usual and covered with whitish mucus in patches or streaks. The reason why, in some of these cases, the patient only complains of cough when he assumes the horizontal position is because then the larynx falls back against the posterior wall of the pharynx, and the drainage of the catarrhal secretion from the pharynx, instead of flowing off by the œsophagus, trickles into the aperture of the larynx, and so excites cough. Sometimes the trailing of an elongated uvula has the same effect.

When the cough is brought on by eating and drinking, the catarrhal state has probably extended to the upper part of the larynx, and the increased supply of fluid and nutritive material to the blood is attended by increased fulness of the vessels, and increased secretion from the catarrhal surface, thus giving rise to cough for its expulsion. Local treatment is of especial value in relieving these conditions. The mucus membrane should be cleansed of the more or less tenacious mucus adherent to it by alkaline sprays or gargles. Warm Ems and Bourboule Water are both good for this purpose; or a warm spray of a solution of carbonate of soda, 5 to 10 grains to the oz., to which a few grains of common salt and a few drops of glycerine are added, may be advantageously used. These solutions may be applied by means of a hand spray, or a Seigle's steam spray producer. The mucus membrane having been thus cleansed by these alkaline sprays, astringent applications will now take much greater effect on the dilated vessels, and gargles and sprays of solutions of alum, or tannin, or perchloride of iron will be found useful. Or stronger solutions may be applied directly to the pharynx by means of brushes. The glycerine of tannin of the British Pharmacopœia is a good application in some cases.

In some instances gargles containing both alkaline and astringent ingredients prove very serviceable, and many patients prefer them to the trouble of spraying. A good gargle for this purpose consists of 1 drachm of chlorate of potash, 2 drachms of aromatic spirits of ammonia, and half-an-ounce of tincture of catechu to 8 ozs. of water. Another good form consists of half-an-ounce of glycerine of borax, 1 drachm of chlorate of potash, half-an-ounce of tincture of rhatany, and 8 ozs. of water.

If there is much laryngeal irritation an occasional lozenge of morphine and ipecacuanha will usually allay it. But in troublesome cases, you will find one of the most reliable resources for getting rid of the catarrh and with it the teazing cough, is to brush the mucous membrane of the pharynx, the posterior surface of the soft palate and the upper part of the larynx, so far as it is readily accessible, with a solution of nitrate of silver, 10 grains to the ounce. I have found this expedient give speedy relief when other measures have failed.

Gargling the throat with ice-water before sitting down to a meal, or before going to bed, will often, in slight cases, prevent the attacks of cough of which I have spoken. In similar instances, a gargle of port wine after a meal is both pleasant and serviceable.—*Medical Times, June* 7, 1884, *p.* 757.

24.—ON THE TREATMENT OF ACUTE AND CHRONIC LARYNGEAL CATARRH.

By I. Burney Yeo, M.D., F.R.C.P., &c.

The treatment appropriate to the *acute* attack itself is as follows:—In the early stage the advantage of small doses of opium or morphine in allaying irritation and relieving the cough is most marked. It is well to combine them with small doses of ipecacuanha or tartarised antimony. The administration of an eighth of a grain of acetate of morphia with one twelfth of a grain of tartarised antimony every four or five hours; or 4 or 5 grains of the compound ipecacuanha powder every five or six hours, will usually relieve most of the distressing symptoms—the tickling cough, the soreness in the larynx itself, the difficulty in swallowing sometimes present, and the hoarseness or impairment of voice. Warm alkaline drinks are also of much value in thinning the tenacious adhesive mucus which often hangs about the glottis and upper part of the larynx, and is difficult of expulsion; for this purpose a third of a tumblerful of Ems, or Bourboule, or Apollinaris Water, to which a tablespoonful or two of hot milk or whey may be added, should be drunk every two or three hours.

When it is not easy to get these mineral waters you can prescribe the following mixture, which answers quite as well:—Sodæ bi-carbonatis, ʒ j.; sodii chloridi, gr. xviii.; spr. chloroformi, ♏ xxx.; aquæ anisi ad ℥ vj. M. ft. mist. Of this mixture two tablespoonfuls should be taken every two or three hours with two tablespoonfuls of hot water or milk.

Counter irritation and warmth in the shape of a small poultice of mustard and linseed applied over the larynx are of great service. Some, however, prefer cold compresses.

It is of the greatest importance to avoid all causes of further irritation. The patient should therefore be kept to the house, and in one uniform temperature. All exercise of the voice should be forbidden, and the desire to cough should be resisted as much as possible. Violent efforts at coughing irritate and injure the inflamed mucous membrane covering the glottis.

The inhalation of the vapour of hot water or of infusions of demulcent herbs or warm alkaline sprays is useful when the cough is hard and dry and there is difficulty in softening the tenacious and scanty mucous secretions. Direct local applications are rarely advisable in cases of acute catarrhal laryngitis, but they are of great service if the catarrhal condition persists and the case becomes chronic.

Acute laryngeal catarrh is usually a mild and easily managed disease, but it often occurs with troublesome frequency in persons who have to use the voice much in singing or speaking, and it is then more difficult to treat, and tends to become chronic.

But acute laryngitis in young children is often a grave malady on account of the attacks of nocturnal dyspnœa (laryngismus stridulus, or false croup) which frequently accompany it. These attacks often assume a very alarming aspect and are constantly mistaken for attacks of true croup, especially by anxious parents.

A young child becomes affected with what is apparently a mild catarrhal affection, attended with a little sneezing and coughing, but without any dyspnœa or other alarming symptom, but in the middle of the night it wakes up with an alarming attack of dyspnœa accompanied with loud stridulous inspiration, a dry hacking cough, and hoarseness of voice. The dyspnœa is often intense and is attended with great restlessness and anxiety. Careful inspection of the throat will satisfy you that the attack is not due to any membranous or diphtheritic exudation. It is due to the fact that the larynx and glottis in young children are small and imperfectly developed, and the catarrhal swelling of the mucous membrane, together, probably, with the accumulation during sleep of dry tenacious mucus on the margins of the glottis, are sufficient to cause considerable laryngeal stenosis and inspiratory obstruction. In some cases spasmodic contraction of the laryngeal muscles no doubt contribute to the dyspnœa. As a rule, these attacks of dyspnœa pass off after a longer or shorter interval and are unattended by danger; but the attacks have such a serious and alarming appearance, and the anxiety of the little patient's relatives is generally so great that some active treatment is urgently demanded to allay their fears and is usually rewarded with much apparent success.

If the child is a vigorous one no harm, and possibly some good, may be done by the application of a leech, or perhaps two, over the manubrium sterni. It is a proceeding which usually commends itself to the parents, and it is a mistake to suppose that the abstraction of a small amount of blood in such cases can do any harm. Hot sponges applied to the laryngeal region are useful; and while some think highly of a few small and rapidly repeated doses of aconite in these cases, others think better of emetic doses of ipecacuanha and tartarised antimony. Certainly a sixth of a grain of tartarised antimony with 30 or 40 minims of ipecacuanha wine, mixed with a teaspoonful of warm water, will cut such attacks short in a striking manner.

If, however, there is œdema of the glottis, which cannot be thus relieved, and scarification is impossible or fails to be efficacious, while the dyspnœa continues to be alarming, then tracheotomy must be performed.

Attacks such as these are usually limited to childhood: but it does occasionally happen that œdema of the glottis suddenly sets in in the course of an acute laryngitis in the adult. In such cases, if the dyspnœa is alarming and the laryngeal stenosis cannot be overcome by scarification, no time should be lost, but recourse had speedily to tracheotomy. Happily these cases in adults are very rare.

Treatment of Chronic Laryngeal Catarrh.—Repeated and neglected attacks of acute laryngeal catarrh lead to the establishment of a chronic catarrhal condition of the larynx, which is often tedious and difficult of cure. It is often brought on by overtaxing the vocal organs in public speaking, singing, &c., so that it is common to find this affection amongst clergymen, public singers, and actors. It is also, in some cases, due to an extension of a catarrhal condition from the pharyngeal mucous membrane, as in drunkards, and inveterate consumers of tobacco. The hoarse voice of drunkards is well known. It also forms a part of the morbid changes which affect the larynx in phthisis and syphilis. We shall here only consider briefly the treatment of the simple form of chronic laryngeal catarrh, characterised by three prominent symptoms—hoarseness, cough, and expectoration.

The treatment of this troublesome affection requires, first of all, the removal of the exciting cause. Absolute rest of the organ must be insisted upon in the case of public speakers, actors, and singers, and the advantage they often derive from a few weeks' residence and treatment at such spas as Les Eaux Bonnes or Mont Dore probably depends as much, if not more, on the enforced repose and the healthiness of the out of door life, in pure tonic air, they lead there than on the use of the very feebly mineralised waters of those springs.

Local applications are mainly to be relied upon in the treatment of this disease. These are applied to the larynx by the physician himself, usually by means of a brush and with the help of the laryngoscope. Various astringent remedies are employed for this purpose, and each physician usually has his favourite remedy. Ziemssen extols the use of strong solutions of nitrate of silver, 16 grains and upwards to the ounce, and they are, doubtless, amongst the most efficacious remedies: the good effect lasts much longer than that of milder astringents, so that an application once a week or once a fortnight will suffice. Others prefer the chloride of zinc (20 grains to the ounce), others chloride of iron (20 grains to the ounce), alum (10 grains to the ounce), tannin (10 grains to the ounce), and so on.

In the intervals of these applications the use of astringent or alkaline sprays may be beneficial. A Siegle's steam spray producer is the best apparatus for their production and application. As an astringent, a solution of tannin, 5 grains to the ounce, is perhaps the best. The spray should be applied twice a day for about five minutes each time. In cases where the mucous secretion is scanty and tenacious and difficult of removal from the mucous membrane and vocal chords, warm alkaline sprays are of much value. A solution of carbonate of soda and common salt, about 5 grains of each to the ounce, is one of the best.—*Medical Times and Gazette, July* 12, 1884, *p.* 37.

25.—ON THE TREATMENT OF THE GRAVER FORMS OF ACUTE BRONCHITIS

By I. BURNEY YEO, M.D., F.R.C.P., Physician to King's College Hospital.

We will next consider the treatment most appropriate to the graver forms of acute bronchitis: to those cases in which the catarrhal inflammation is diffused over a great extent of the bronchial mucous membrane, and affects not only the larger tubes, but those also of medium size, and sometimes even the smallest ramifications. Such cases when they occur, even in vigorous adults, are very grave and require most careful management: but when they occur, as they often do, in young children or in old and feeble persons, they are attended with the greatest danger.

When the finer bronchial tubes become attacked, and their calibre is diminished by the inflammatory swelling of their lining membrane, and when many of them become blocked up by the accumulation in them of viscid secretion, you can readily understand how imminent must be the danger of death by apnœa. Let us ask ourselves what are the objects we have in view in the treatment of such cases? They are these:—(1) To diminish the inflammatory hyperæmia and swelling of the bronchial mucous membrane. (2) To thin and liquify the catarrhal secretion when it is dry and scanty. (3) To lessen it when excessive. (4) To promote its expulsion from the air passages and so obviate their obstruction. (5) To allay excessive sensibility of the bronchial mucous membrane. (6) To maintain and promote the circulation in the lung, and prevent pulmonary venous engorgement and distension of the right side of the heart. (7) To reduce fever and maintain the general strength.

The several details of treatment by which these indications may be carried out, will have to be modified and adapted to individual cases. Much will necessarily depend on the age and vigour of the patient, as well as on the stage which the disease has reached when it first comes under treatment. Remedies most appropriate in the earliest stage, and in a young and vigorous adult, might be altogether unsuited to more advanced stages, to a young child, or to an old and feeble person.

We will first consider the treatment of a severe attack of acute bronchitis in a young and robust adult seen at its onset. As in the milder cases the patient's room must be kept at an equable temperature of about 65°, and the air of the apartment must be kept moist and unirritating by the free diffusion through it of the vapour of water. If there is much oppression of breathing, and a sense of dryness and pain referred to the upper part of the sternum, the withdrawal of a little blood by means of half-a-dozen leeches applied over the sternum will be a judicious measure, and with this may be associated dry cupping over the back of the chest and in the interscapular region. This measure will constantly afford much relief in robust persons when the dyspnœa and sense of oppression are severe. In most cases it will be advisable to apply large linseed and mustard poultices over the front and back of the chest; and when the skin is too tender to allow of further counter irritation, a hot jacket-poultice of linseed meal must be used instead.

Of internal remedies I am quite of Stokes' opinion that "there is no remedy that possesses such a decided power over acute bronchitis" as tartarised antimony; but its success depends much on its early administration: when the bronchial mucous membrane is dry and tumid, and before secretion has become abundant, and when the skin is hot and dry, and the pulse hard and frequent. It should be given in small repeated doses, combined with other diaphoretics and with opium.

Warm alcoholic drinks must be given to keep up the force of the circulation, while, at the same time, they favour diaphoresis, reduce fever, and promote expectoration. Two or three ounces of hot milk or whey, with an equal quantity of seltzer or soda water, and a table-spoonful of brandy or whisky should be given every three or four hours.

Free evacuation of the bowels should be regularly obtained so as to favour the descent of the diaphragm, and afford as complete expansion of the lungs in breathing as possible;

and by unloading the portal system of veins, any tendency to distension of the right side of the heart is to that extent relieved.

It is necessary to insist strongly on the importance of using the greatest discretion in the administration of opium in these cases of severe diffused acute bronchial catarrh. The more diffused the catarrh, the more cautious must we be in the administration of opium. In old people and in young children opium is scarcely admissible, and even in adults, where there is much obstruction to the entrance of air into the lungs from the abundance of secretion in the air passages, opium is a very dangerous remedy. The effect of opium is to check cough and diminish secretion; the former it does by lessening the sensitiveness of the bronchial membrane, and the latter by modifying the capillary circulation in it. But in cases of "suffocative" bronchitis, while we might desire to diminish the secretion, we dare not deaden the sensitiveness of the bronchial mucous membrane, or do anything to check the cough. We depend upon the cough to clear and set free the obstructed air passages, and we only desire to make it more efficient to this end.

It is extremely important to bear this in mind with regard to the use of opium in bronchial catarrh; a dose of opium given injudiciously may produce a fatal somnolency, quiet the cough, and block up the air passages. If you give opium at all in such cases, give it only in very small doses, and only when the patient is watched by some thoroughly trustworthy person; but never give it at night to produce sleep, however trying the cough may be, or however urgent the patient or the attendants may be for a sedative.

Remember that opium is rarely ever admissible in the severe diffuse bronchial catarrhs of old persons and young children. When it is very necessary to secure a few hours' sleep, it is better to give from 5 to 20 grains of chloral, with an equal quantity of bromide of potassium or sodium.—*Medical Times and Gazette, July* 12, 1884, *p.* 38.

26.—ON THE INTERVAL TREATMENT OF BRONCHITIS.

By Edward Drummond, M.D., Rome.

The leading points to be observed in the management of the various forms of bronchial inflammation, are, as a rule, sufficiently manifest and easy of application, so that when called in to such cases there is little need for hesitation in the choice of remedies. Such periods of attack are of course, especially at the extremes of life, times of the greatest alarm, anxiety, and pressing danger to the patient, who is apt, however, to think that, when they have passed away, all is well again, and for this reason we commonly lose sight of him until another seizure compels him again to seek our aid.

We know, however, that this is very far from being the case; that very often his condition in the interval is very critical; that the latent cause, of which the bronchitis is only a secondary consequence, is still present; that the interval is the period when really *curative* treatment is available, and is the most important part of the life-history of his disease.

As times goes on, if no attempt is made to deal with the diseased condition to which the bronchitis is due, recurrences are more and more frequent; and if the patient is still exposed to the exciting cause, especially in a variable climate, they come to be taken as a mere matter of course, and serve to mark the winter exactly like the return of snow and fog. The patient is hardly ever well, and becomes habituated to a condition of permanent disablement; his power of resistance to weather changes is diminished, and a barometric sensitiveness to them is developed. In the background steadily advancing hidden lesions lurk; and increasing emphysema, heart dilation, lung collapse, interstitial lobular pneumonia, dilatation of the bronchi, and other changes progress, slowly but surely sapping the patient's strength, shortening the duration and diminishing the enjoyment of life; so that, although chronic bronchitis is, *per se*, attended with comparatively little danger to life, it none the less originates or aggravates other lesions, with which its clinical history is interwoven, and often in their nature more perilous than itself. It is not wholly our fault that the patient is withdrawn from our surveillance during the interval, for he, deeming himself "whole," thinks that he "needs not a physician;" but a word of caution and advice might enable us to exercise a controlling influence over him when not actually ill in the strict sense of the word.

The object of this paper is to urge the importance of this, and to point out some particulars in which the patient is liable to suffer from lack of guidance, for I have been increasingly impressed with the frequency with which during the twenty years of my professional life I have been consulted for their "bronchitis" by people who had no suspicion that they had any other contingent malady requiring treatment.

I will select a few types constantly turning up in daily practice which may serve to illustrate my meaning.

No. 1 is a feebly vitalised, anæmic girl, with a phthisical family history. Her laryngeal mucous membrane is shown by the laryngoscope to be pale, with perhaps here and there a weak ulcer. The bronchitis here is a mere incident, and the all-important thing is to face the threatened phthisis by pure air, good food, exercise, iron, and cod-liver oil.

No. 2 is a woman beyond the menopause, with weak and flabby muscles, blueness of the lips, and undue fulness of the veins of the skin of the face; is short-breathed, nervous, and has an anxious look; takes little outdoor exercise, says "she cannot"; sleeps badly, and wakes suddenly. I hardly need the aid of the pulse and stethoscope to tell me that she has dilatation of the heart and probably mitral disease. Digitalis, with potash and a bitter tonic, saline aperients, nourishing food in small quantities, whisky-and-water as a stimulant, abandonment of her overheated room for passive or gentle walking exercise in the open air, will postpone the catastrophe for years, and are more important than the squills, ammonia, and senega of the actual attack.

No. 3 is an old gentleman, manifestly gouty, with early kidney changes, subject to headache, and feeling generally *géne:* has small patches of eczema somewhere about him; has been to German baths and lived according to order, but took it upon himself to add champagne, Curaçoa and black coffee, perhaps ice creams, to the usual regimen. His sole chance of escape from disaster is to live simply by strict rule on a diet largely consisting of vegetables, fish, eggs, milk, poultry, with dry sherry or whisky-and-water; tepid sponge baths, warm underclothing; to avoid club life, with its temptations to dietetic errors, and the society of people like himself; to spend his winters in the south of Europe or on a sea voyage, and his summers on bracing upland moors. Iodide of potassium and arsenic with chiretta will do good, and tepid Carlsbad or Hunyadi Janos water.

No. 4 is a strong, florid, muscular young man who hunts, shoots, *lives well*, in conventional phrase; has a good appetite, enjoys life, but is becoming plethoric; has wheezy breathing, shooting pains in his fingers or toes—or dull aching in the soles of the feet or near a large joint; has had attacks of "red sand" in his urine; perhaps has a neuralgia. He must learn to live *within his powers*, to restrict his diet, especially in meats, to abjure strong wines, malt liquor, and take a minimum of alcohol in any form, to put his trust in Epsom salts and exercise. He may live to a long age, for the declining vital power of age is conservative of such; but without prudence he will develop the condition of the last—No. 3.

I will only add one other out of endless types. It is a common one. No. 5 is a lady, refined, delicate all her life, inclined to anæmia, with little physical power, but mentally acute and bright, has accustomed herself morbidly to watch the weather as a natural foe, has become a subtle meteorological machine, keeps her warm room for long periods, her heart is weak but otherwise normal, her bronchitis is a bronchorrhœa. She has engrafted on her other ailments a decided hypochondriasis; and, depriving her liver of the natural stimulus of exercise, employs probably podophyllin or some quack pill instead. This kind of person is a chronic trouble. Nitric acid with compound infusion of gentian and cascara as a tonic aperient, will be of service. Iron she cannot digest, quinine gives her headache, she is liable to become homœopathic at any rate when not seriously ill, but a thorough change in her mode of life is needed, and a "hardening" process. Dr. Greenhow has well said that "Bronchitis is not so much excited by exposure to any particular degree of cold, as to alterations of temperature; and a patient confined to his room sometimes feels changes of temperature more than those that go abroad. Indeed, persons who live in heated rooms, and screen themselves from every draught of air, sometimes become so susceptible that even accidental cooling of the apartment proves as injurious as a much more serious exposure would to persons of ordinary habits." Keep up the circulation, give tone to the mucous membrane and system generally, and judiciously accustom the patient to external temperature and open air exercise.—*Practitioner, Sept.*, 1884, *p.* 181.

27.—ON FOLLICULAR TONSILLITIS: ITS SYMPTOMS, CAUSES, AND TREATMENT.

By F. P. Atkinson, M.D.

I suppose every medical man has occasionally seen a mild case of follicular tonsillitis accompanied with slight feverish symptoms and general malaise, but it seldom occurs in its severer and epidemic form, and the consequence is, when it does break out, it is often supposed to be a species of diphtheria. I have looked into various text-books on medicine for a description of the disease, but have found it to be almost entirely passed over, and it is on this account I have ventured to make a few remarks on the subject.

Symptoms.—The patient complains of chilliness, followed by heat and dryness of skin, pain in the head and limbs, more especially the shoulders. and occasionally there is congestion of the eyes and nose, together with herpetic eruptions about the lips. The temperature is above the natural, often as high as 103°. The tongue is coated, and on the tonsils, which are somewhat red and swollen, are some small, round, slightly elevated buff-coloured patches. There is generally some pain in swallowing, but as a rule it is not very great.

Causes.—Not at present quite clear. Two theories have been put forward: one that it arises from taking milk drawn from cows suffering from foot-and-mouth disease, the other from damp associated with deficient sanitary house arrangements.

In the early part of the epidemic which occurred in Surbiton and Kingston at the end of 1882 and the beginning of 1883 the weather was particularly damp and foggy, and *the sufferers were almost entirely women and servants. Rarely more than two or three in a house were attacked. Very few, if any, children were attacked under five years of age.* These facts struck every one, and were accounted for by the damp state of the basements of the houses, and the young children being generally kept in the upper parts. Mr. Shirtliff, the Medical Officer of Health for Kingston, suggests that the disease may be simply pharyngeal herpes, modified by the situation. "Certainly," he says, "it coexists with labial herpes and the premonitory malaise of ordinary influenza. The early high temperature points to a catarrhal origin." Some persons in the district finding that a large proportion of cases occurred amongst those supplied by one particular dairy (which I may remark in passing was by far the largest and best managed in the place) asserted that milk was the cause, and that there was something wrong either with the cows, dairies, water, or *employés.* These were all thoroughly examined by the Medical Officer of Health, Sanitary Inspector, Inspector of Nuisances, &c., and persons were sent to inquire as to all possible chances of supply, but nothing wrong could be detected.

A curious fact, worth noting, is that though the *cases* that came under my care were *ordered larger quantities of milk than usual* they almost all, with scarcely a single exception, were *convalescent in three days.* Some had subsequent debility, but this arises occasionally after attacks of influenza.

If follicular tonsillitis and foot-and-mouth disease be really one and the same disease, it certainly runs a very different course in human beings and cattle. In the former its *average duration is from three to four days ;* whereas *in cattle,* I believe, it is rather *a trying and lengthy illness,* and causes great loss of flesh in almost every single instance. It is moreover infectious in cattle, and apparently non-infectious in man.

The milk contractor of the Lincoln Union it would appear was, in the beginning of 1883, fined for not reporting that he had foot-and-mouth disease amongst his cattle. There was not then, nor had there been, any special illness amongst the inmates, and he asserted that he had not supplied milk from the infected cows, but it is difficult to suppose that no milk was forwarded during the time they were sickening and before the symptoms distinctly showed themselves. Since the epidemic of 1882-83 I have seen occasional cases of follicular tonsillitis, both in this and other places, and Mr. Shirtliff says that during the winter months scarcely a week passes without his seeing two or three fresh cases. Such being the facts, I cannot myself see how we can come to the conclusion that foot-and-mouth disease and follicular tonsillitis are one and the same disease.

Treatment.—I generally found a mixture consisting of effervescing citrate of potash, with chlorate of potash, or biborate of soda, and sweet spirits of nitre taken every four hours, and a *gargle*, consisting of 30 grains of boracic acid ; 2 drachms of glycerine ; and 1 oz. of the compound infusion of roses, to afford distinct relief. The diet should be light and nourishing, viz., corn flour, milk, and beef-tea.—*Practitioner, Sept.*, 1884, *p.* 198.

28.—ON TRACHEOTOMY IN CROUP.

By George W. Gay, M.D., Surgeon to the Boston City Hospital, Boston, Mass., U.S.A.

The mortality in croup is so great, and the results of all kinds of treatment are often so unsatisfactory, that many members of the profession entertain the opinion, that all their efforts are powerless to save life, or to give even temporary relief. This statement applies especially to the operation of tracheotomy. Always an anxious, and oftentimes a difficult one to perform, requiring the most intelligent, skilful, and unremitting care in the after-treatment, yet it has given more relief, and saved more lives in pseudo-membranous laryngitis than all other remedial measures. Not infrequently the operator will meet with accidents, and occasionally may lose a patient upon the table, yet he may rest assured that, in the long run, he will do more good than harm, and that he will save some lives which would probably have been lost had he not interfered. It will be the object of this paper to show that the results of this operation are not as unsatisfactory as has been supposed ; that surgical treatment offers a better prospect of success than any other ; that a fair proportion of the patients can be saved ; and that many more can be greatly relieved by a timely resort to this measure.

The term croup is used here in its generic sense, as meaning an acute laryngeal obstruction to respiration, due to the presence of a false membrane. Two varieties come to the notice of the surgeon : the membranous and the diphtheritic. The false croup so common in young children can usually be recognised from the fact that it occurs suddenly, and in the night, is paroxysmal, of short duration, less severe in character, yields readily to treatment, and seldom, if ever, terminates fatally. Acute catarrhal laryngitis of adults is not a common affection. The symptoms resemble those of the membranous disease, and may require surgical interference.

As a correct diagnosis of the two kinds of laryngitis under consideration is thought by many to be of great importance in regard to the prognosis and treatment, I may be pardoned a few words upon the subject. The profession has always been, and still is, divided upon the question of the identity of membranous and diphtheritic croup; one portion claiming that the former is purely a local, and the latter a constitutional disease; while the other portion, with equal tenacity, assert that they are essentially one and the same affection, under different manifestations. The writer takes the ground that membranous croup is a distinct and separate disease from diphtheria, for the following reasons: It is not contagious; it is a local lesion confined to the air-passages; it causes death by mechanical means; it never results in systemic infection; it has never disappeared from notice for long periods of time, and over a large extent of territory, as has diphtheria.

Fatal cases of diphtheria in which the larynx is not affected are common. Idiopathic croup, on the contrary, is invariably a laryngeal disease, is confined to the air-passages, and causes death by suffocation. In short, membranous croup is simply that, and nothing else; while diphtheria, though occasionally attended with croup, is always something more.

But while a doubt may exist in the minds of many as to the character of these affections, there can be none as to the duty of the practitioner. It is for him to study the condition of the patient, rather than the name of his malady. The treatment should be based upon the symptoms presented, and not upon a disputed theory of the nature of his disease. Surgical interference is often necessary to relieve the difficulty in breathing, and, in the opinion of the writer, the cases of probable membranous laryngitis, attended with severe and increasing dyspnœa of over twenty-four hours' duration, are rare, in which the patient, whatever may be his general condition, should be refused the benefit that may result from opening the trachea. It is of the first importance that the mechanical obstruction to respiration should be removed at the earliest moment possible. Before resorting to any operative measures, it is always well to form some idea of the probable result of the case, if it be allowed to proceed without them. The evidence which I have been able to gather touching the results of the medical treatment of croup is somewhat conflicting.

As the result of written enquiries of about thirty prominent practitioners in New England, I have heard of the recovery of between thirty and forty cases under medical treatment, which is a small proportion of cases observed. One physician reports seven cases; another four, another three; several had never seen a case of spontaneous recovery, and they all agree that such results are rare. These gentlemen have been in practice for a period of from thirty to sixty years.

Tracheotomy for this disease has been performed one hundred and eighteen times at the Boston City Hospital during the past twenty years. Thirty-nine, or one in three, were successful. That the cases were not selected, is conclusively shown by the fact that three patients died during the operation from shock and exhaustion, not from hemorrhage; thirty-four died within twenty-four hours; and fifty-six, or more than one-half of the fatal cases, within forty-eight hours. Four, if not five, of the successful cases were practically moribund at the time of the operation. While the records are not sufficiently complete to enable me to give the exact number belonging to each class, yet the diphtheritic variety largely predominated. The ages of these patients ranged from nine months to forty-one years. The youngest to recover was eleven months; the oldest, sixteen years. Four aged two years, and five aged three years got well. Membrane was visible in the fauces or trachea in a large proportion of both the successful and unsuccessful cases. Its absence was noted in only three of each class. It need not be said, that in every instance there was present severe, constant, and increasing dyspnœa, exhausting the strength and threatening suffocation.

As a rule, the operation was followed by marked temporary relief; and in many of the fatal cases the difficulty in respiration did not return until the patient was comatose from blood-poisoning, and hence beyond suffering. In a few instances the smaller air-tubes were so extensively invaded by the deposit that no benefit resulted from the procedure. A large majority of the patients had received appropriate medical treatment previous to entering the hospital, and were only sent there when it had become evident that an operation was the only alternative. It follows, of course, that many of the cases were in a most deplorable condition. It is the rule with us, however, to open the trachea at once, if there is the least prospect that the patient will survive it, and in more than one instance the result has justified the practice.

The advantages of an early tracheotomy are, that the patient is better able to undergo it; the strength is preserved, more nourishment can be taken, and more sleep secured; time is gained in which it may be hoped that the disease will run its course; and finally, it seems reasonable to suppose, as is claimed by some writers, that it tends to prevent those pulmonary complications so common in the later stages of the disease. Other things being equal, early operations will probably give better results than late ones.

Little need be said here as to the best method of performing tracheotomy. Every operator of much experience gradually acquires one of his own. I learned long ago to be chary of the use of ether in these cases, as it may impede or suspend the respiration, and it often increases the shock and prostration. The pain is not very severe, and usually ceases as soon as the skin is divided. With good assistants, the operation can be safely performed in a majority of instances without an anæsthetic.

Having performed the high and low operation many times, I have come to prefer the former because the trachea is more easily reached, there is less danger of hemorrhage, and it is more easily controlled, there is less liability to abscess and emphysema, and because nothing is gained by opening the trachea an inch or so lower, as the obstruction, if present, is at or below the bifurcation. I do not hesitate to divide the cricoid cartilage, or the isthmus of the thyroid gland, and have never seen any harm result from so doing. The trachea is secured with a tenaculum before being incised, thus avoiding the danger of missing it, or of losing sight of the opening, mishaps which are embarrassing, and not uncommon. A moderate sized silver tube with a movable shoulder is always used. This has been worn in the above cases for periods varying from five days to two or three years. None of the patients have been compelled to wear it permanently.

I have found the most satisfactory method of getting rid of the tube to be as follows:—About a week after the operation, if the respiration is free and easy, the canula is quietly removed, and the patient is left undisturbed. No trials are made to ascertain if he can breathe through the larynx. As the wound in the trachea contracts, respiration by the natural channel is gradually re-established. I have never seen a patient die from hemorrhage during this operation, either before or after the trachea had been opened, and I do not think it has ever occurred at the City Hospital.

In cases of croup, whether contagious or not, no one is called upon to risk his life in trying to suck out the contents of the bronchial tubes. Too many valuable lives have been sacrificed in that way, and in view of the fact that there are other and better methods of accomplishiug the object, the plan should be totally abandoned. Forcing air into the lungs from the mouth of the operator is rapid, efficacious, and comparatively safe; trying to empty the bronchial tubes by suction is always dangerous, and rarely successful.

Next to nourishment, I consider steam to be the most important factor in the treatment of these cases. So essential is this agent in my opinion, that I have repeatedly refused to operate in private practice, when it was impossible to obtain a sufficient supply. At the hospital the pipes are tapped, and the steam is conducted through a rubber tube, attached to a frame on castors, and directed upon the throat of the patient. The severe cases are made to inhale it constantly, with the result of softening the secretion, quieting the cough, and often relieving the dyspnœa.

Neither medicated nor atomized fluids have been used of late for inhalation. The effects obtained from the use of warm steam seem to be as beneficial as they were when lime water, carbolic acid, &c., were in vogue.

It is desirable that two efficient nurses should be in attendance, one to relieve the other, who have had special training, and who are able to remove and replace the outer canula, and clear out the trachea in an emergency. It is not safe to leave these patients in charge of inexperienced friends, while the over-tasked nurse is getting her sleep. In short, the service of the sick-room should be quiet, regular, intelligent, and untiring.

In conclusion, I would briefly mention the following reasons for resorting to tracheotomy in membranous laryngitis. The disease is always dangerous, and very often fatal. The results obtained from medical treatment alone are extremely unsatisfactory. Tracheotomy gives more relief, and saves more lives, than any other method of treatment known to the profession. It seldom hastens death, and still more seldom causes it. Finally, it affords the friends the great and lasting satisfaction of knowing that everything possible has been done for the patient.—*Philadelphia Medical News, July* 12, 1884, *p*. 32.

29.—ON HÆMOPTYSIS AND ITS TREATMENT.

By Seymour Taylor, M.D.Aberd., Physician to the North London Hospital for Consumption, &c.

In discussing hæmoptysis and its treatment, I would at the onset wish to state that the following remarks relate only to such cases in which there is a suspicion that pulmonary tubercle is present. It is probably a correct assertion that there is no complication in phthisis more alarming to the patient and his friends than a severe attack of pulmonary hemorrhage. It is equally probable that of all the more grave symptoms of phthisis hæmoptysis is *per se* of less moment as regards its immediate danger than many others to which less attention is paid. In laying down this rule I refer mainly to an ordinary case of blood-spitting, and such severe forms as suffocative hæmoptysis, in which an aneurysmal dilatation of a bloodvessel suddenly ruptures, are not for the moment taken into consideration. The mental disturbance which a patient undergoes when suffering from hemorrhage is one of the difficulties the physician has to meet; but in many instances this great factor is overlooked, and we concentrate our energies in prescribing astringents which often fail, and perhaps as often do harm. The treatment generally advocated is guided by arbitrary rules; and remedies are ordered often with no scientific knowledge of their action, but more in accordance with empiricism. It is generally acknowledged that hæmoptysis, in however slight a form, is one of the sure signs of tubercular phthisis; but it will be as well to admit that it may occur without the presence of tubercle, and also that it may be found in some cases of phthisis in which the presence of tubercles is of secondary import as regards the cause of bleeding; or, in other words, that hæmoptysis may arise from disturbances in the vascular current through the lungs, such disturbances being independent of the presence of new growth. On the other hand, not a few cases of rapid phthisis run their course to a fatal termination without their having been at any period any hemorrhage whatever.

In a majority of instances I am of opinion there should be no undue precipitancy in employing many of the astringents usually advocated. It has certainly been my experience that in the early stage of pulmonary consumption a small amount of hemorrhage has been rather beneficial than otherwise. A blood-spitting at this period is merely a method of nature to alleviate a congested apex. Consequently it is a congestion we have to combat, not the subsequent hemorrhage. We see a similar course of events in epistaxis, in bleeding from the bowel, yet no medical man would think of applying astringents and styptics in these latter cases unless the amount of blood lost be very great. On the contrary, he often finds painful symptoms are dispelled by the very hemorrhage. But should such an occurrence happen in connexion with the lung, we are told to give acetate of lead, gallic acid, and other astringents, which it is hoped will act on the vessels of the lung, a treatment which, I submit, is not correct, nor yet scientific. Our best treatment at this period is to attend to the sufferer's general health and condition. Do not restrict him from gentle exercise, but at the same time distinguish between exercise and over-exertion; and let us remember that the former has a tendency to the promotion of a more perfect circulation, and this, I take it, should be one of our chief aims in the treatment at this period. The patient suffering from hemorrhage of the first stage has, I find, a better chance of speedy recovery if he pursues a healthy occupation than one who is ordered to be confined to his bed. Blood-spitting is quite as frequent amongst the in-patients as amongst those attending the out-patient rooms; and yet, owing to patients being admitted, according to priority of application, the cases are no more advanced in disease in the wards at Hampstead than they are in the out-patient rooms.

As regards climate, I believe we have in this country certain situations, the adaptability of which we have overlooked in our treatment of consumptives. It has been my experience that patients have derived much benefit from residence in the high lands around Buxton and the Derbyshire Peak. The few cases I have sent to that locality have certainly returned to town with much diminution in their worst symptoms, and notably with arrest of hemorrhage. On the other hand, I cannot speak so favourably of the results of residence at Bournemouth, Hastings, and other relaxing resorts on our southern coasts. The treatment of the severer forms of lung hemorrhage occurring in the second and third stages is more difficult to determine. It is generally felt by the physician that some decisive treatment must be speedily adopted, some steps taken to at once arrest the copious bleeding. Notwithstanding this, I believe the experience of most practitioners will lead them to conclude that in a majority of cases the hæmoptysis stops spontaneously. We must remember the comparative rarity of death occurring from hæmoptysis. I have seen only one death occur during an attack. Other writers also confirm this opinion. For example, so careful and extensive an observer as Dr. C. J. B. Williams states that he has seen only three deaths from hæmoptysis. Again, the late Dr. T. Locock asserted that only 1 per cent. of the cases of hæmoptysis die from that cause, and even that is an average higher than I had expected. Taking these views as correct, I apprehend that the administration of large doses of gallic acid or of sulphuric acid is scarcely correct treatment. These drugs can have little or no effect on a remote apical lesion. On the other hand, I am sure I have seen them do harm by glueing up the intestines, and so favouring a continuance of the hemorrhage, by increasing the arterial tension. To my mind the administration of a purgative would be the more rational treatment. A similar doubt as to the efficacy of some other astringent drugs has continually been under my consideration. With some medical men acetate of lead has great repute; others employ chloride of sodium in large doses. Alum has its advocates, and so has tartar emetic, and even mercury. The clinical records of the Paris hospitals have been used to endeavour to prove the efficiency of ipecacuanha. Hamamelis has become a fashionable drug. As a consequence one is embarrassed with the number of remedies, some of which have been almost lauded as specifics. But I am obliged to say my experience of their power for real good is not satisfactory.

As regards outward applications, the conclusion I have drawn from careful observation is that an ice-bag placed on the chest is a valueless proceeding. I have never yet convinced myself that the application of such excessive cold can astringe a ruptured vessel through a pad of muscular tissue, of bones, and also (if the hemorrhage be deeply seated) of condensed lung. Further, the ice-bag is almost invariably planted over the front of the patient's chest, wherever may be the seat of the hemorrhage. I am more than doubtful how this application, with its damp depressing discomfort when placed on the parietes of a man's thorax, even over the supposed seat of a hemorrhage, can have any effect in arresting the same. We seem by this step to overlook the one great factor, rest, in stanching an internal bleeding. It precludes the patient from sleep, his mind is disturbed in consequence, and he apparently loses rather than gains from the treatment. Does it not seem more probable that the cold, acting on the superficial vessels of the chest-wall, would rather tend, if anything, to increase an internal engorgement? On the other hand, I can with confidence recommend an opposite line of treatment—viz., the application of warmth. In three cases recently of severe hæmoptysis I have seen beneficial results from such steps. I applied hot flannels (at about 120° F.) over the angles of the ribs from summit to base of the thorax—in other words, over the sympathetic ganglia,—and in each case with speedy and happy results. I cannot claim that this method of treatment is by any means novel. It was advocated by Dr. John Chapman in 1875 in an able paper; and I submit that it has not been adopted by practitioners so frequently as it deserves. We see the same principle adopted by obstetricians in cases of uterine hemorrhages, and there is scarcely a week passes but the medical journals contain reports of successful treatment of flooding by hot-water injections into the uterus, as opposed to the old-established practice of applying ice.

Turning now to medicinal remedies, I must confess that we have only a few drugs which we may really regard as controllers of pulmonary hemorrhage; but these few are really valuable. We too often overlook the clinical fact that in hæmoptysis one of the most urgent conditions to treat is the great restlessness and mental disturbance of the sufferer. He is in a state of great excitement and alarm, a condition also imparted to his friends, and by them as it were reflected on the patient again. This point requires our skill and attention. We have at our command a drug, opium (and its derivatives) which acts like a charm. So far as my experience goes it should not be given if administered internally with any other remedy likely to retard or interfere with its full action. Give it in such doses that its physiological effects are produced. If the hemorrhage be very profuse digitalis may be added, but also in large doses, such as fifteen minims to twenty minims of the tincture, till its specific action on the heart is manifest and the frequency of the pulse materially diminished. As a result the patient is calmed, his excited circulation controlled, and he falls into a much-needed sleep. There is yet another method of administering the sedative—viz., by hypodermic injection; and I have found this plan most useful and efficacious. Four minims of the injectio morphiæ hypodermica are introduced into the subcutaneous tissue of the arm, or, as I have sometimes preferred, into the subcutaneous tissue of the chest immediately over the presumed seat of the hemorrhage, and repeated if requisite. The advantage of this method of exhibiting the remedy is its speedy action; the momentary and trivial discomfort of the operation is more than counterbalanced by the good results which ensue. Of the forty-seven cases the notes of which I have before stated form the basis of this paper, eighteen were adult patients suffering from severe pulmonary hemorrhage occurring in the second or third stages of phthisis, and were treated by opium and digitalis internally or by morphia hypodermic injection, with good results in all. So far as I am able to judge of the effects of remedies the above method of treatment is happier in its immediate results than the administration of astringents and so-called styptics, which mainly affect the intestinal tract. Indeed, one of my chief desires in making this communication is to protest against the ordinary practice of prescribing drugs which probably do nothing more than produce a constipation, or the action of which on the circulatory system is more than open to doubt. There are, however, two other drugs which I have found extremely useful when opium is contra-indicated. I allude to oil of turpentine and the liquid extract of ergot. The former may be given by the mouth, the latter either by the mouth or by subcutaneous injection. I have seen excellent results from both in a few cases. The objection to turpentine is its nauseating effect, but its action in controlling hemorrhage is undoubted. My experience of ergot has not been extensive, but I found it a powerful remedy in four cases of severe and continued blood-spitting.—*Lancet, June* 14, 1884, *p*. 1069.

30.—ON THE TREATMENT OF LUNG TUBERCLE.

By G. A. Heron, M.D., Physician to the City of London Hospital for Diseases of the Chest.

It was only about twenty-seven months ago that our knowledge of the cause of tubercular disease received its greatest addition from the genius of a man of whom the whole profession of medicine in every country has good reason to be proud. No sooner did Dr. Robert Koch discover that tubercular disease is due to a living organism than he set to work to search for a remedy for that disease—the most fatal of all the diseases which affect civilised man. Koch did not seek the remedy at the bedside of the consumptive, for he believes that, if such a remedy exists, it will be found in the outcome of experiments conducted in the laboratory and tested at the bedside. He and his assistants were able freely to conduct these experiments, for the great German nation have not yet learned to regard human interests as standing upon a lower level than those of the lower animals.

I propose now to lay before you, as shortly as I can, the results of practical importance which these experiments have established in connexion with our present purpose. I shall quote observations made by Drs. Ernst Schüll and Bernhard Fischer, in the Imperial Health Office in Berlin, whose chief is Dr. Koch. The object that these two gentlemen had in view was the ascertaining of how perfectly to disinfect the excreta of tuberculous patients. With the details of the elaborately exact series of experiments carried out by these observers for that purpose I need not now trouble you. In the end they established these two important facts, amongst others:—1. That a 5 per cent. solution of carbolic acid in water, mixed with an equal bulk of fresh sputum containing a large number of tubercle bacilli, in twenty-four hours destroyed the virulent properties of the sputum. 2. That ten parts of a saturated solution of anilin in water, freshly prepared, mixed with one part of fresh sputum containing a large number of tubercle bacilli, completely sterilised the sputum in twenty-four hours. Drs. Schüll and Fischer established these facts by injecting some of the fresh sputum, before its disinfection, into the bodies of animals, and found that tubercular disease was invariably developed as a consequence in the lungs, liver, and spleen; whereas, after disinfection of the sputum in the way just indicated, no tubercular disease followed its injection into the bodies of animals. Besides carbolic acid and anilin, several other substances were experimented with by Drs. Schüll and Fischer, and amongst them were some which proved more or less efficient in destroying the virulence of tuberculous sputa. Of these, absolute alcohol gave the best results, for it was found that by mixing one part of the infected sputum with ten parts of absolute alcohol, sterilisation of the sputa was secured. Corrosive sublimate did not yield satisfactory results, for it was found that the animals experimented upon with this substance died of sublimate poisoning when they were subjected to an injection of equal parts of a mixture of tuberculous sputa and a

1 in 500 solution of perchloride of mercury. So far as our present knowledge helps us we can only use carbolic acid and anilin in a treatment of lung tubercle founded upon these experiments. The choice of a way of using carbolic acid is limited. I selected inhalation of carbolic acid vapour as the method of administration; and one of my smaller wards in this hospital has been converted into an inhalation room. In constructing a chamber for inhalation purposes the simplest contrivance has been employed. The window is partly, and the fireplace completely, covered with a screen of coarse cloth in the shape of a roller-towel. These screens dip into a trough, and so are kept constantly wet with a saturated solution of the ordinary commercial variety of carbolic acid. Near the centre of the ward is a gas stove with a shallow basin upon it containing a quantity of Calvert's No. 4 carbolic acid.

We know very well, from the results of cultivation experiments, that the bacillus of tubercle increases in number with considerable rapidity out of the body, though its exact rate of multiplication is not yet known. We know also, from our observations at the bedside of the consumptive, that the organism forms new colonies with distressing perseverance after it has made its first lodgment in the human lung. When we remember that a mature bacillus contains from two to six spores, and that probably each one of these spores will in its turn become a full-blown organism, and the parent of a numerous progeny; and when, in addition to all that, we call to mind how difficult, and how rarely successful, is any attempt thoroughly to disinfect, or, in Listerian phrase, to "make sweet" a moderately deep wound to which there is easy access from the surface of the body—we can form some estimate of the extreme difficulties that lie before us in our attempts to destroy the growth of the bacillus of tubercle within the lung.

One thing seems clear to me, and that is the absolute necessity of submitting patients night and day, without any intermission, to the action of the vapour of carbolic acid, if we wish to test thoroughly its action in cases of lung tubercle. It must be obvious to everyone, after studying the experiments of Schüll and Fischer, and reading Mr Ansdell's report, that nothing short of strict confinement to the inhalation room by night and by day and for a long period can be of real use in materially impeding the growth of the bacillus in the lungs. It is upon that condition being distinctly accepted by patients that admissions to the inhalation room upstairs are granted.

I much regret that the patients who have passed through the inhalation room are too few in number to warrant any special reference to them at present. I will only say that I find in the record of these cases sufficient encouragement to pursue still further this line of treatment. I cannot shut out from my mind the hope that the road to success in treating consumption, should we ever find it, may be found to lead in the direction which seems to be indicated by Koch's researches.—*Lancet, Sept.* 6, 1884, *p.* 397.

31.—ON THE CONTAGIOUSNESS OF CONSUMPTION.

By Dr. E. J. Kempf, Louisville.

In the beginning of the year 1880 the Sisters' Convent in the village of Ferdinand was entirely free from consumption. The order is a very austere one. The sisters live a very secluded life, they take but little exercise, they are strict in their habits, and very cleanly. The convent is well ventilated, lies high and dry, and is well drained. The candidates of the sisterhood are derived from the surrounding country, and are daughters of farmers and labourers. Before they enter the convent they are generally noted for their piety and reticence as well as their want of bodily strength and vigour. Professor C. Knapp, now of Evansville, the former physician of the convent, had no case of pulmonary phthisis in the convent at the time of his resignation as attending physician. His general run of diseases consisted of fevers, hysterical cases, and the derangement of the uterine functions—whites, irregular menstruation, sequels of their secluded life.

In the fall of 1880 I was consulted by one of the sisters, a young girl about eighteen years of age, on account of a cough or pain in the breast, and a feeling of general malaise. The girl comes from a family which I would not call healthy. One of her brothers has a deformed breast, a so-called pigeon-breast, a sign of a scrofulous diathesis. A brother died of consumption. On examining the patient, I found dulness and bronchial breathing in the apices of both lungs, as if from tubercular deposit, difficult breathing, hacking cough, indifferent appetite, sleepless nights, tired and weary limbs, and a daily fever. I pronounced the case one of consumption, and prescribed accordingly.

The case went on to the second stage. The patient has not been isolated; she sleeps in the general dormitory as formerly. One sister after another now commenced to complain with similar symptoms, as described in the first case, and in four months after the first sister was seized with the disease I had nine cases of consumption under my care, sisters that were formerly thought to be exceptionally healthy.

Four sisters died of the disease in the course of a year, Sisters Angela, Dorothea, Brigitta, and Ida, and five are still sick with the disease. Two of the remaining five cases are dying, and the other three have taken the chronic form of the disease, and may linger for months or years. The director of the convent afterwards took energetic means to isolate the sick and send away the ailing, and the epidemic was stopped.—*London Medical Record, July* 15, 1884, *p.* 277.

32.—TREATMENT OF PRETUBERCULAR AND ADVANCED PHTHISIS PULMONALIS BY THE MULLEIN PLANT.

By F. J. B. Quinlan, M.D.Univ.Dubl., Fellow of the King and Queen's College of Physicians, Ireland.

In the collection of ancient Irish manuscripts contained in the library of the Royal Irish Academy are several medical treatises in which the mullein plant is strongly recommended in pulmonary disease. In fact, the first word of its Celtic name means "good for pulmonary complaints." From time immemorial the Irish peasantry have regarded this plant as an unfailing cure for consumption; and thus it is that an herb, which in England, France, and Germany is a mere wild weed, is in Ireland carefully cultivated on a very large scale. It is in constant demand, it is advertised in all the journals, and in fact, forms an article of ordinary commerce. There are five mulleins, all belonging to the natural order of scrophularaceæ; but the one in question is the Verbascum Thapsus, or great mullein, which is known in France as the *molène bouillon blanc*, and in Germany as the *kleinblumiges Wollkraut*. It is a hardy biennial plant, with a strong stalk from half a metre to two metres high, with thick woolly and mucilaginous leaves, and a long flower spike with numerous yellow flowers, the smell of which is not disagreeable. The best results are obtained with the green leaves, which can be procured during seven or eight months of the year; but excellent effects are produced by the dried leaves also. By cultivation under glass the mullein can be had fresh during the winter; and this is important, as will presently be seen.

The method employed by the Irish peasantry is to take one hundred grammes of the fresh green leaves (or about thirty of the dried) and place them in rather more than one litre of fresh cow-milk. This is brought to a boil, and allowed to stand for ten minutes. The hot fluid is then filtered, is slightly sweetened, and is drank while warm. This whole quantity is taken twice or, in some cases, three times a day. It has a soothing pectoral effect, and, after a little time, is much liked by the patient.

Although in such popular repute, and in such extensive use, the mullein is not in the Pharmacopœia, nor was it regularly recognised by the medical profession. It appeared to me that it would be well that the matter should be properly investigated, and accordingly, during the last two years, I have treated a series of cases of pulmonary consumption in all its stages—127 in number—with the mullein leaf solely, with one trifling exception, which I shall presently notice. This procedure gave the most unbounded satisfaction to the patients, who implicitly believed in the remedy, and co-operated zealously with me in its use. Previous to commencing treatment each patient was carefully weighed, and this weighing was repeated every week, with great attention to uniformity of conditions as to time, clothing, meals, &c. The symptoms and physical signs of each patient were accurately noted, and the results tabulated. The conclusions to which I have arrived are as follows:—

1. In the early and pretubercular stage of pulmonary consumption mullein has a weight-increasing and curative power greater than that of cod-liver oil, and nearly equal to that of Russian koumiss. It has been experimentally proved that this is due to the mullein, inasmuch as the milk alone fails to accomplish the same results.

2. In cases in which tubercles are well established, or cavities exist, the mullein has a great power in relieving cough. In fact, such a patient taking it requires no cough mixture at all, and every practical physician will recognise the great boon which this power confers on the phthisical sufferers, whose stomachs are often hardly able to receive sufficient alimentary sustenance. Indeed, the mullein milk is looked on by them more as a food than as a medicine. In persons of very feeble digestion heaviness is often experienced after so much milk. This, however, can be completely relieved by allowing the boiled mullein milk to cool down to 50° C., and adding a teaspoonful of Benger's pancreatic fluid. It should then be left under cover for ten minutes.

3. Phthisical diarrhœa is completely obviated by the mullein. This is, no doubt, aided by the milk, but also occurs when the mullein is prepared with water.

4. All the symptoms of pulmonary consumption can be combated by the mullein, except colliquative perspirations—over them mullein has no influence; and in my cases I principally employed the hypodermic injection of the atropia sulphate. This is the exception to the sole mullein treatment to which I have already alluded.

5. Mullein smoke applied directly to the respiratory passages has a great effect in relieving irritation, and spasmodic coughs, and coughs in general. The dried leaves of the mullein are broken up fine, and are smoked in an ordinary pipe, either pure

or mixed with a little tobacco to flavour them. Wheeler and Whitaker, of High Street, Belfast (Ireland), prepare very elegant cigarettes for this purpose. These are of two kinds—(1) mullein, flavoured with a little Turkish tobacco; (2)—for those to whom tobacco is disagreeable—mullein, flavoured with a little oil of cascarilla.

Cod-liver oil is very disagreeable to take, and the quantity which is taken in all civilised countries, notwithstanding the wry faces generally made while taking it, by patients of all nationalities, is the surest testimony of its merit. It is, in my opinion, inferior to the mullein milk as a weight-increaser. It does not arrest cough, and it often does the contrary of arresting phthisical diarrhœa. Lastly, it disgusts the feeble stomach very much—to such an extent that many patients are entirely unable to take it. In the whole course of my experiments I met no patient who could not take the mullein, and scarcely any who disliked it.

The power of the mullein in soothing the downward path of the advanced sufferer is of lesser consequence; for, did it not exist, there are many other ways of accomplishing the same object. My only apology for the position I take is this—a high standard of ancient native culture perished in Ireland amid a sea of national woe; and, from my boyhood, I have seen the humbler classes of a whole nation cultivating, believing in, using, and paying for a remedy which elsewhere was, in modern times, regarded as a mere weed. It appeared to me that a whole nation using a remedy for centuries, and, no doubt, judging it by results, could not be wholly wrong. I approached the subject without any preconceived opinion, and had the result of my research been unfavourable, and the opposite of what it was, I had determined to announce it as such. All that I ask for this remedy from my esteemed colleagues here is to try it in a similar spirit, and I have no expectation of their taking any other course.—*Dublin Journal of Medical Science, Sept.*, 1884, *p.* 193.

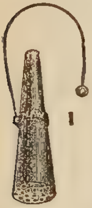
33.—PHTHISIS.—A NEW INHALER, WITH REMARKS ON OPEN ANTISEPTIC INHALATION.

By J. Ward Cousins, M.D.Lond., F.R.C.S., Surgeon to the Royal Portsmouth Hospital.

The recent revival of the old question as to the contagiousness of phthisis has also exercised an important influence in promoting the treatment by inhalation, and has even succeeded in giving it a new direction. The possible communication of the disease by contagion of some sort has long been a matter of controversy, and many men of distinction have taken part in this ancient disputation; but at the present moment it is still surrounded by many difficulties, and it appears almost as far off as ever from a final settlement. The discovery of micro-organisms has produced a complete resuscitation of the old dispute, and has surrounded it with new and impressive issues.

All efforts to filter the inspired air are theoretically unsound and practically useless, and the cumbrous instruments constructed with this intention often indirectly exercise a baneful influence on the surroundings of many who are daily endeavouring to protect their lungs with antiseptic inhalations. The constant use of a close inhaler fosters the common prejudice against fresh air and sufficient ventilation, and the treatment degenerates into a struggle between germs within and germs without, hopelessly carried on by breathing through an uncomely mask, and by confinement in a close and stuffy atmosphere.

The advocates of antiseptic inhalation are quite unanimous as to the necessity of employing it with great regularity and perseverance over a long period; but there is much diversity of opinion as to the method of application and the form of instrument best adapted for the treatment. Recently Dr. Hassall has referred to "the comparative inefficiency in diseases of the lungs of the methods of inhalation now in use by means of oral and oro-nasal inhalers," and he advocates the revival of the old method of treatment by means of a chamber charged with antiseptic vapours, and is now engaged in perfecting an aparatus which he hopes will render this system more generally practicable. The experience of most practitioners at the present time is, however, clearly in favour of the direct inhalation of dry vapours, and a great variety of instruments have been constructed for the purpose—for the most part modifications of the original respirator inhaler suggested by Dr. Sinclair Coghill in 1876. The simplest forms of apparatus are now almost universally preferred, as they are more comfortable to the patient and more readily tolerated during prolonged application. Some inhalers are too heavy and cause a feeling of oppression, and sometimes even difficulty of breathing; others are objectionable by pressing on the face and causing irritation of the skin. It is my opinion that all close oro-nasal respirators and complex instruments present no real advantages, and that they must soon fall into disuse, as their employment is seriously irksome to many patients. An inhaler ought to be a very light mechanical contrivance, especially designed to permit the voluntary introduction of medicated vapour by full inspiration, at the same time securing the freest possible access of air, so that the continuous and daily practice may be rendered both endurable and pleasant. The small instrument represented in the engraving appears to me to possess all these essential qualifications. It consists of a vulcanite receptacle (Fig. 1) for holding the little pledget of cotton-wool upon which the inhalant is dropped. The wire suspends the inhaler, and serves also as a compressor of the nose. When used for nasal inhalation one of the balls (Fig. 2) must be selected, and half only of its circumference ought to enter the nostril. During oral inhalation another ball is used, or the neck of the inhaler can rest against the upper teeth. Figures 3 and 4 explain the method of adjusting the instrument. By merely opening and closing the mouth the patient can regulate the entrance of the antiseptic vapour into the lungs. It is extremely light, and causes no fatigue or oppression, and it does not require to be taken off during coughing or expulsion of the sputa. I am much indebted to Messrs. S. Maw, Son, & Thompson for the care they have bestowed upon the manufacture of my inhaler, and I am glad to add that it can be obtained from that firm at a very moderate price.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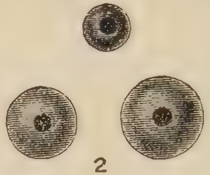
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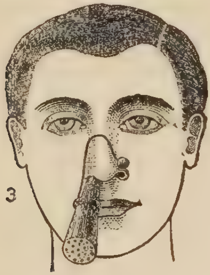
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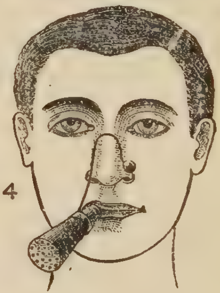
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As to the value of different inhalants and antiseptic combinations, and for information on these important matters I must especially refer to the papers of Dr. Sinclair Coghill, Dr. Burney Yeo, and other eminent physicians. To Dr. Coghill we are undoubtedly indebted for the revival of inhalation as a regular part of the treatment of pulmonary disease, and a perusal of his published experiences will be extremely serviceable to any who have not yet given it the attention which it merits.—*Lancet, July* 19, 1884, *p*. 100.

34.—CASE OF ABSCESS OF THE LUNG CURED BY INCISION AND DRAINAGE.

By T. Pridgin Teale, M.B., F.R.C.S.Eng., Consulting Surgeon to the General Infirmary at Leeds.

The following case is interesting as a contribution to the discussion which has been raised on a very important question.

On March 1st, 1881, I was requested to visit Mr. B——, aged fifty-four, in consultation with Mr. Ireland of Tadcaster, and to tap a pleuritic effusion on the right side of the chest. The patient had been ill for three months, and had been seen occasionally by the late Dr. Shann of York, Dr. Clifford Allbutt of Leeds, and Dr. Myrtle of Harrogate. The earlier history of the case had been most obscure, commencing in December, 1880, with a cold, shivering, loss of flesh, vomiting and retching, and pain in the hepatic region, but there was no cough, nor any symptom of lung disease. Dr. Allbutt in the middle of February found the hepatic dulness increasing upwards, as if there were fluid in the lower part of the thorax, and a week later (Feb. 28th) Dr. Myrtle saw the patient, and, finding dulness occupying the lower half of the right lung, came to the conclusion that fluid was present, and advised early tapping.

On March 1st, 1881, after examining the chest, I came to the same conclusion as the other medical men—namely, that there was fluid in the pleural cavity. The right side of the thorax having been punctured low down with the small trocar of Bartleet's aspirator, a few drops of clear straw-coloured fluid escaped, and even after the addition of the suction of the aspirator only two drachms of fluid were obtained. Being still confident that fluid was present, I made a fresh puncture higher up, when very offensive, thin, greenish pus appeared, but only in drops. By applying the aspirator more pus was withdrawn, and after careful and continuous aspiration about a pint of pus was slowly obtained. My view at the time was that there were two separate collections of fluid in the pleural cavity, shut off by adhesion from one another. In consequence of the unexpected character of the case, two days later a consultation was held with Dr. Allbutt, Dr. Myrtle, and Mr. Ireland, and it was decided that as soon as the temporary relief given by the tapping had passed by, the thorax should be opened and drained.

On the 16th the patient had become more hectic, had expectorated for two days most offensive pus, and was altogether extremely ill. The following notes of Mr. B——'s condition were taken at the time by Mr. R. N. Hartley :—The chest as a whole was rather rigid, moving little during respiration, with perhaps slight inequality of movement of the two sides. The respiration was tranquil (30); the pulse 150. The left side was normal. On the right side there was continuous dulness below and over the hepatic area, extending upwards in front to about the level of the fifth rib, a little below the nipple, and laterally round the axilla, and diminishing towards the spine. In the recumbent posture there was a spot in the front of the chest having a peculiar "cracked-pot" resonance in the middle of a dull area. The area of the dulness was somewhat altered by change of position. Breathing but faintly audible over the dull area. No râles.

Operation.—An exploring trocar was introduced at a point a little below and in front of the angle of the scapula (ninth intercostal space), and a syringeful of fetid pus was withdrawn. The patient having been very cautiously put under ether by Mr. Hartley, I made, with the assistance of Mr. Ireland, an incision at the site of the puncture, and opened the pleural cavity. No pus appeared, only a small quantity of serum. The finger introduced into the pleural sac discovered the lung, but no large space. The adjacent pleural surfaces were rough, and numerous adhesions were broken down easily by the finger passing in all directions. The lung felt dense and boggy, not crepitant and elastic. On reintroducing the trocar and puncturing the lung pus appeared. The puncture was enlarged so as to admit the finger, and two pints of most fetid pus escaped, rendering the room almost unbearable. A large drainage-tube about six inches long having been inserted, the cavity was syringed out with a weak solution of carbolic acid, and the chest was encased in carbolic tow, &c.

The after-progress of the case was extremely tedious and critical. As far as the local condition in the chest was concerned the treatment was comparatively simple. The cavity in the lung was washed out (at first three times a day) with a weak solution of carbolic acid or Condy's fluid, by means of a small catheter introduced along the drainage-tube. For three weeks the offensive character of the discharge continued, but at the end of this time it was comparatively sweet, though still considerable in quantity. On one occasion the patient expectorated a little pus, but this ceased spontaneously, and, with the exception of an occasional "suffocating feeling" when the cavity was being syringed out, symptoms directly referable to the lung mischief were not prominent. The patient's general condition, however, was for months one of the greatest anxiety, the symptoms being mainly those of septicæmic poisoning. Persistent vomiting, hectic, profuse sweating, delirium, and obstinate hiccough (lasting at one time almost incessantly for a whole week) were the most prominent features of the illness. At the beginning of July an attempt was made to move the patient to Scarborough, but was abandoned in consequence of a prolonged faint as soon as he was placed in the carriage. Later on, after a critical and dangerous attack of diarrhœa, the tongue cleaned, and he began to improve and to be able, almost for the first time for months, to assimilate an appreciable quantity of food at a time. The discharge from the sinus in the lung had all this time been gradually lessening, and the drainage-tube, which had been shortened at the rate of about an inch per month, was expelled spontaneously about August 24th, and could not be replaced, the sinus finally healing a few days afterwards. Before Christmas—*i.e.*, within a year of the commencement of his illness, and within nine months of the incision into the lung—the patient had resumed his active work as a solicitor.

Remarks.—1. The surgical treatment of affections of the lung being as yet in a tentative stage, I have thought it well to report this case somewhat fully, as it is instructive in many points, is complete in its result, and, considering the age of the patient, is rare, if not unique. 2. Although in commencing the operation I thought the case to be one of empyema, my course would have been the same had I believed that the pus came from a cavity in the lung. It is clear also that the fact of the offensiveness of the pus ought to have suggested to me the probability that the collection was in the lung, and not in the pleural cavity. 3. The early history of the affection was most obscure. It seems not impossible that it commenced as a diaphragmatic pleurisy with a circumscribed empyema, which made its way upwards into the pulmonary tissue. 4. Another instructive point is this, that the first puncture with a small trocar only withdrew, even when aided by the aspirator, two drachms of serum; and that the pus was discovered by a second puncture. The pus also could not be withdrawn without the aid of the aspirator. 5. The case illustrates the importance of having an aspirator at hand when tapping a chest, to be used *only* in case the fluid will not flow spontaneously through the cannula and attached indiarubber tube. Bartleet's pocket aspirator is most convenient and useful, and does not apply suction too powerfully. 6. The question whether the opposed layers of pleura are adherent hardly affects the decision of the surgeon, chiefly because in the cases calling for interference it is impossible to ascertain the point, except by operation; secondly, because in suitable cases, in which as a rule there will be a large area of dulness, it seems probable that pneumothorax is not one of the factors that will arise to impair the prospects of success. Two cases of traumatic pneumothorax—not from broken rib—with healthy lung, under my care, have made good and rapid recovery. 7.

This case is an additional encouragement to attempts to relieve surgically abscess and gangrene of lung. Such attempts will probably be most successful when the abscess can be reached and drained posteriorly through the ninth or tenth intercostal space.—*Lancet, July* 5, 1884, *p*. 6.

DISEASES OF THE ORGANS OF DIGESTION.

35.—ON THE TREATMENT OF TROPICAL DIARRHŒA.

By Sir JOSEPH FAYRER, K.C.S.I., M.D., F.R.S.

The commencement of chronic diarrhœa is insidious, and the disease often gains ground before radical measures are resorted to for its removal. In the cases that come under notice at home, the most essential step towards recovery has been taken by the patient returning to Europe; but there remains much to be done to further the improvement, which may probably have advanced considerably during the sea-voyage.

The successful treatment of chronic diarrhœa depends very much on the patient's resolution and perseverance in carrying out the instructions he receives. Diet is the most important element in it, and this must be strictly regulated; all irritating or indigestible and solid food must be at first entirely prohibited, and only that which is most easily assimilated allowed. Milk, alone or in some cases diluted with about one-fourth or one-third part of lime-water, given in small quantities and at frequent intervals—say, a wineglassful or small tumblerful every hour, or second or third hour, in some cases more frequently—will generally be found to answer, and may be continued for a long time, to the exclusion of all other food, with great advantage. Milk undiluted will not always agree (but I must say that, after considerable experience, I have very rarely found it to disagree), as may be seen by its causing irritation, and the passage of undigested caseine; but it is quite sufficient for nutrition, and by the time the patient finds that he is taking three to four quarts a day, he will have realised that he obtains from it all that is needed to support health and strength. At first, he may lose weight, but soon regains and increases it. Beef-tea, raw beef-juice, or other plain animal broth free from extraneous matters, or finely minced fresh meat; a raw egg beaten up with milk, to which a teaspoonful of brandy may be added, will sometimes, but very rarely, be tolerated (though I seldom find that they agree, and have to be discontinued). Arrowroot, tapioca, or other plain farinaceous food will sometimes, but not always, answer, certainly not at first. Tea and coffee, as a general rule, disagree, and should be avoided. Stimulants, especially for those who have long been habituated to their use, may be needed; the best are a little whisky or brandy diluted with Vals or Vichy or potash-water; but these should be laid aside if they increase the action of the bowels. A little good port wine may be tried; but, as a general rule, I find all wines unsuitable. The return to ordinary diet must be very gradual and tentative. Regularity in the times of administration and in the quantity of nourishment given is most essential. The greatest care should be taken not to give too much of anything at a time, and at once to discontinue whatever appears to disagree.

It is necessary that the patient should be kept warm, and at an equable temperature day and night. The body should be covered with flannel or woollen material next the skin, and a flannel-bandage should surround the abdomen. Chills and damp are especially to be avoided, for exposure to them may seriously aggravate the mischief. During cold weather, the patient should not leave the house.

But, long after recovery is apparently complete, the greatest care must be taken to avoid errors in diet, over-fatigue (rest in the recumbent posture is desirable to give rest to the intestines), or exposure to extremes of temperature, or a relapse may take place. It is desirable that the stay in Europe should be prolonged, especially after recovery from severe attacks, beyond one hot season at least, and it may be necessary to defer return to India for another year.

Drugs will do little good if strict dietetic and hygienic rules be not most carefully and continuously observed. Under the impression—derived chiefly from the appearance of the evacuations—that the liver is mainly at fault, it is sometimes deemed expedient to administer cholagogues or alteratives. This, I think, is unnecessary, as there is not sufficient ground for supposing that the liver is specially at fault. The chief indication is to restore the healthy functions of the bowel by giving it rest, to promote absorption, and to delay the expulsion of its contents. This we may hope to effect by introducing only bland, unirritating, and nutrient fluids, by allaying irritation and checking excited action, and by administering such remedies as may tend to improve the general health.

To allay the irritable state of the bowels, the compound ipecacuanha powder, in combination with bismuth, quinine, and alkalies, may sometimes prove useful. Where the motions are fluid, copious, and frequent, tannin or gallic acid may be given in combination with Dover's powder. Sulphate of copper with opium has been recommended. Dilute nitric and hydrochloric acids, in combination with opium, have been found beneficial where other remedies have failed. Nitrate of silver is sometimes given, but I have not found it to produce any satisfactory results. *As a general rule, all drugs are useless.* Counter-irritation over the abdomen by sinapisms or turpentine stupes may be useful. Opiates and small demulcent injections are often efficacious in allaying the irritability of the bowel and giving rest. Hypodermic injections of morphia may be tried if opiates do not agree; but I have not found it necessary to resort to them. Opiates are sometimes objected to on account of their interference with the secretions; but this is, I believe, a groundless objection; the colour of the evacuations need not prevent their use, and the rest and quiet that they give may be of importance. Mucilaginous decoctions or infusions, such as those prepared from the fresh bale-fruit, or from the isophgool *(Plantago Isophgoola)*, the seeds of which are often given with good effect by the natives of India for the sake of the mucilaginous envelope. Solution of gum, water-arrowroot, etc., may be beneficial for their soothing and nutrient properties.

In the earlier stages of the disease, where there is hepatic and portal congestion, ipecacuanha in large doses, ten to twenty grains, may cut short the state which would have passed into diarrhœa. This, however, is quite inapplicable to the disease in its more developed stages. I have found some cases, which were aggravated by a state of portal congestion, improve rapidly after a few doses of a saline aperient.

As recovery progresses, preparations of quinine, iron, and other tonics are beneficial. A visit to some of the Continental health-resorts may be of advantage in expediting recovery, not so much for the sake of the waters, chalybeate or others, as for that important element in recovery from nearly all chronic diseases, "change," for the regulated and physiologically correct life, and the mental tone imparted by the determination to recover in a congenial place of residence.

The use of drugs will be modified by the peculiar circumstances of each case, but I think that, generally, the plan I have suggested will prove successful in cases that have not advanced too far. Where emaciation has made great progress, where the tongue is always red, smooth, and glazed, the mouth dry or aphthous, the diarrhœa constant, and the exhaustion great, one cannot but feel great anxiety and uncertainty as to the result, though it is seldom necessary to declare a case hopeless. The diarrhœa may disappear in this condition, giving a delusive appearance of improvement, which is not unfrequently the precursor of death. Happily, a number of cases of chronic diarrhœa of the character I have been describing have a favourable termination, and they are so in proportion to the care in which the patient adheres to the plan of treatment laid down for him; and I would emphatically repeat that strict adherence to simple milk for a long period, it may be for months, will generally prove of more value than medication of any kind.

I would only add, in conclusion, that in some cases the fresh bael, taken early in the morning in the form of sherbet, as it is given in India, will sometimes have good effect. A remedy that has often produced good results in India could hardly fail to do so here; but, of course, it, like all other mere drugs, is altogether of secondary importance to dietetic and hygienic measures.—*British Medical Journal, May* 31, 1884, *p.* 1031.

36.—ON SOUNDING FOR IMPACTED GALL-STONES.

By Dr. George Harley, F.R.S.

The knowledge of the fact that the cable of symptomatology is nearly "payed-out," and consequently the onward career of Rational Medicine to her legitimate goal—that of an exact science—must in future almost entirely depend on the acceptance and judicious application of easily workable physical aids to the recognition of internal diseases, induces me to avail myself of this favourable opportunity of making known to my professional brethren an instrumental method of indubitably ascertaining the existence of impacted gall-stones. A point of no mean importance, seeing how many difficulties beset the symptomatic path of diagnosis in this most fatal form of affection. Before proceeding to do so, however, it is advisable for me to make a few prefatory remarks on the clinology of biliary concretions. For, judging from the reports of the speeches made at our metropolitan as well as our provincial medical societies, when the subject of gall-stones is discussed, a woeful amount of ignorance regarding both their symptomatology and pathology is prevalent in the profession.

One of the commonest of the false statements enunciated is that gall-stone affections are not generally dangerous. Exactly the contrary is the case; the general ignorance of the fatality of gall-stone cases being due to the unfortunate frequency with which patients succumb to them without the medical attendant's having had the remotest idea of the true pathology of the case he was treating. The reason of this is not far to seek, for it lies, I believe, in the fact of his having been falsely taught that all dangerous gall-stone cases are associated with jaundice and paroxysmal pain; whereas it actually happens that the majority of fatal gall-stone cases are unassociated with either the one or the other of them. Incredible as this may appear, it is nevertheless perfectly true. For there is no jaundice, and no paroxysmal pain (indeed, in the first instance very little pain of any kind whatever) when a gall-stone ulcerates its way out of the gall-bladder. Should the stone in this case enter the peritoneum, a fatal peritonitis is the result. Should it enter the intestines, if large it kills the patient by ileus; if small, it passes safely down the intestines until it reaches the ileo-cæcal valve, where it often sets up such an amount of irritation as speedily induces a fatal enteritis. The unsuspected gall-stone may kill even more rapidly still. As when in the course of its perforating career it opens a blood vessel, which, if it pours its contents into the stomach, leads to the mistaken diagnosis of hæmatemesis; if into the intestines, gives rise to bloody stools. Or it may burst into the peritonæal cavity and the patient become suddenly collapsed, and die without either a single trace of the hemorrhage or its exciting cause being visible to reveal the true nature of the case. That such fatal cases of gall-stone perforation are far from uncommon I know from personal experience. No less than four, and strangely enough all in gentlemen of above forty years of age, have fallen under my notice within the last year. One died six hours after I saw him, another within twelve, a third within forty-eight, while the fourth happily recovered, and that, too, notwithstanding that pure blood was passed both by mouth and rectum.

The entire absence of both signs and symptoms in many gall-stone cases is, however, readily explicable, without its entailing a belief in their non-dangerous nature. For it is due to the fact that, from the majority of gall-stones being slowly formed in the gall-bladder itself, they give rise to no signs or symptoms as long as they remain there. No, sometimes not even to biliary functional derangement, though the viscus be choke-full of them. This is on account of a gall-bladder not being essential to life, as is proved by the fact that people have grown up to adult life without having ever possessed a vestige of one. And many species of animals have normally no gall-bladders, for example the horse and the deer. There is nothing then surprising in the fact that gall-stones, though fatal things, may yet be found at necropsies in the gall-bladders of persons who never complained of them. Indeed, it would rather be surprising if it were otherwise, seeing that they are usually formed there, and that their career of discomfort and mischief only begins when they attempt to get out of the gall-bladder either by directly perforating through its coats, or by forcibly entering the cystic duct.

From the remarks which fell from the speakers, at the discussion on my recent paper on "Gall-Stone Sounding," at the Royal Medical and Chirurgical Society, it further appears to be very far from generally known that, notwithstanding that a dozen—even a thousand—gall-stones may exist for years in a patient's body, without giving rise to a single sign or symptom by which their presence can be suspected, all the most marked signs as well as symptoms, given in text-books as indubitable evidence of the existence of dangerous gall-stones, may be present without a single stone or biliary concretion of any kind whatever existing in the sufferer's body. This is a startling fact no doubt, but it is nevertheless quite true, as I shall now proceed to show. For:—(*a*) Gall-stones never produce jaundice, pipe-clay stools, nor bilious urine, except when they become impacted in a duct. And the only ducts in which their impaction leads to this result are the hepatic and common bile ducts. (*b*) Not only can their presence in these ducts in the majority of cases be recognised, but even differentiated. And what is more, their impaction in the intra-hepatic as well as in the cystic duct can also be detected, though in these cases there is no jaundice, no pipe-clay stools, and no saffron-coloured urine.

After having thus shown how comparatively easy it is not only to diagnose, but even to differentiate the various forms of impacted gall-stones, the reader may perhaps wonder why I take so much trouble to make known an instrumental method for detecting them. Here is my reason, and a very potent one it is. More than twenty years' experience of gall-stone cases has not only convinced me that many patients annually die from the effects of impacted biliary concretions, whose lives might in all probability be saved were the obstructing body artificially extracted; but at the same time made me painfully conscious that, as has just been shown, all their most characteristic signs and symptoms may be manifested by a patient who has not a vestige of a biliary concretion of any kind whatever within his body. I believe therefore that it would not only be injudicious, but criminal for any physician to recommend to a patient to submit to what an hospital-surgeon had the temerity, at the debate on my paper, to deliberately propose doing as a means of diagnosis. Namely, to incise a patient's abdomen, cut open his gall-bladder, stitch its edges to the lips of the wound in the abdominal parietes, and then search for the impacted stone in it; showing that his idea was, that dangerously obstructing calculi are to be found in gall-bladders. Moreover, be it noted that this formidable diagnostic procedure was proposed by him as being simpler than the operation of sounding with a trocar not bigger than a knitting needle.

I strongly advise practitioners to make themselves perfectly sure of the obstruction being due to a gall-stone before proceeding to lay open their patient's abdomen in the sanguine expectation of finding one.

Although my method of sounding for stones may not be entirely devoid of danger—for no operation on the human abdomen is, not even the simple one of tapping—it certainly has the advantage of being less rash, as well as less dangerous to life than that of cutting down with a knife, either on ducts or gall-bladders, in search for gall-stones which may have no existence. Moreover, I have already performed the operation successfully, and what has been done once may be done again. The instrument employed was a six-inch long French exploring trocar, of somewhat less diameter than an English No. 1 catheter. And I now recommend that it should be provided with a blunt-nosed steel pilot, to be introduced after the trocar has been inserted into the abdomen, and before the search for the stone is proceeded with.

After the patient is put under the influence of an anæsthetic, the operation of sounding may be performed in the following wise:—

1st. Push the trocar through the abdominal parietes in the direction of the common bile duct.

2nd. If the instrument impinges on no hard solid, withdraw the stilette and judge of the situation of the cannula's point by observing what kind of fluid flows from its free orifice—bile, abdominal serum, blood, or intestinal fluid.

3rd. Being satisfied that the point of the cannula occupies no dangerous position, introduce the blunt-nosed pilot, and proceed to search about in all directions for the stone. The presence of one will be readily recognised by the fact that no hard substance whatever exists in the neighbourhood of the gall-bladder and bile ducts. And a gall-stone when struck, either in the gall-bladder or ducts, gives the same characteristic sensation to the fingers as a urinary calculus.

As several of the speakers at the debate on my paper objected to this plan of sounding, on the ground of the danger of peritonitis being induced by the bile escaping into the peritonæal cavity, notwithstanding that I had cited a case where no less than thirteen pints were removed by tapping from the abdomen of a boy whose gall-bladder had been ruptured three weeks previously, and they ought to have known that both distended gall-bladders and bile ducts have been beneficially tapped, I deemed it advisable to see what would actually be the result of puncturing a distended gall-bladder with my exploring trocar. Especially as one of the speakers had, forgetting that the coats of bile ducts and gall-bladders are elastic, inconsiderately suggested that the moving about of the instrument would enlarge the puncture.

Accordingly, along with Prof. Schäfer, I performed the following experiment:—A dog which had been kept fasting for twenty-six hours, in order that his gall-bladder might be fully distended, was rendered insensible with chloroform. The abdomen was opened, and into the distended gall-bladder I inserted my trocar. Twisted it about and then withdrew it. No spurt of bile whatever took place. Nothing more than an oozing followed. The oozing even soon ceased, from the coats of the gall-bladder (which, be it remembered, are even very thin in a small dog) contracting as the viscus emptied itself. In order, then, that all risk of a dangerous exudation of bile into the peritonæal cavity may be avoided, it is merely necessary to withdraw some of it before removing the cannula.

In those cases where the obstruction has given rise to great distension of either the bile duct or the gall-bladder, and from the orifice of the cannula bile flows when the stilette is withdrawn, it might perhaps be advisable to empty them of their biliary contents before proceeding to search for the suspected stone.

I shall now give the history of the case of impacted gall-stone in which I successfully performed the operation.

The patient, a delicate constitutioned lady, aged 36, married, and the mother of several children, had for many months suffered from all the worst signs and symptoms of obstructed common bile duct. Not only was her abdomen greatly distended with ascitic fluid; but she was so weak and near to the point of death that both Dr. Diver—her regular medical attendant—and I, believed that the only chance of prolonging her life lay in the artificial removal of the obstruction. Before, however, calling in an operative surgeon to perform bilotomy, we deemed it prudent to make perfectly sure that the obstruction of the bile duct was due to the presence of a stone, as neither of us had any wish to see the poor sufferer's abdomen unnecessarily opened. Accordingly, a day or two after a gallon of ascitic fluid had been withdrawn from her abdomen, she was made insensible with A. C. E. anæsthetic mixture (given because of her having a weak heart). I then introduced an exploring trocar (in the manner before described) at a point midway between the lower margin of the liver and the umbilicus; but an inch and a half to the right of it.

The instrument was then slowly pushed upwards, outwards and backwards in the direction of the common bile duct; but although it was inserted up to its hilt (six inches) in the still distended ascitic abdomen no hard substance was encountered. In order to ascertain the exact position of the cannula's point, I withdrew the stilette to see if any, and what kind of fluid would flow from it. As nothing but ascitic fluid came away, its point was known to be free in the abdominal cavity, so I proceeded to search with it in all directions for the suspected stone. The search proving unsuccessful, the instrument was withdrawn and reinserted an inch higher up, a little more to the right. On again pushing it in the direction of the common bile duct, just as it reached its full depth of six inches, its point not only impinged upon, but stuck in a hard substance. The sensation communicated to the fingers, as well as the faint sound emitted when this was tapped against with the blunt end of the cannula, left no doubt upon my mind that it was a calculus. The next point was, if possible, to ascertain its size, by pressing the end of the cannula firmly against it, and running the point of the instrument round it. The impression so derived was that the stone was of the size and shape of an ordinary hazel nut. As no blood whatever flowed from the punctures, either during or after the operation, these orifices were simply covered over with a piece of sticking plaster, and the abdomen bound up.

The sounding having thus completely confirmed the symptomatic diagnosis, and further shown that the obstructing stone was no bigger than a moderately sized hazel nut, it was deemed advisable, before subjecting the patient, in her exceedingly weak state, to the severe operation of bilotomy, to delay a few days in the hope that under the influence of medicine the stone might pass along the duct into the intestines. Most fortunate this determination turned out to be; for at my next visit—six days after the sounding—I found all the signs and symptoms ameliorated. The stools had not only already become of their normal colour (which they had not been for many weeks), but the urine had lost its bilious hue, and the skin was less jaundiced. Besides which, the previously distended gall-bladder was now no longer perceptible to the touch. Changes which, when considered collectively, led to but one conclusion, namely, that the duct was free—that the stone had passed. As it had not, however, been found in the stools, it was thought to be still within the bowels, experience having taught me that stones after having safely reached the intestines do not always immediately come away, but often remain in them for weeks, sometimes even for months.

No untoward symptom resulted from the operation. Everything went on well until the eleventh day after the sounding, when pain and tenderness were complained of in the right iliac region. The pulse became rapid. The temperature rose, and signs of enteritis speedily followed, no doubt from the usual cause in such cases, namely, the irritation produced by the stone getting lodged in the ileo-cæcal valve. Its ordinary concomitant, peritonitis, supervened, and notwithstanding that the patient had regained considerable strength during the eleven days of convalescence after the sounding, she sank and died twenty-seven days after the operation, which had so fortunately led to the accidental dislodgment of the stone, after its having been for so many weeks previously firmly and dangerously impacted in the duct.

Now comes the important question. Of what practical good is the narration of this case? I reply—Of great practical good, if its teachings are properly considered. For its history clearly establishes the following points:—

A. That the presence of an impacted gall-stone may, under similar circumstances as the above, be indubitably ascertained by instrumental means.

B. That not only can the exact position and probable size, but under favourable circumstances even the very shape of an impacted gall-stone be instrumentally ascertained.

C. That the operation of sounding for gall-stones in the way here advocated is as safe in skilled hands as the tapping of a distended gall-bladder or ovarian cyst.

D. A knowledge of the clinical facts adduced may possibly deter enterprising surgeons from laying open the abdomens of patients in search for gall-stones which not only possibly but even probably have no existence whatever.

E. While the fact of being able to indubitably ascertain the existence of a gall-stone without undertaking the severe operation of incising the abdomen, on the mere chance of finding one, may induce physicians to recommend patients suffering from suspected dangerously impacted biliary concretions to submit to the operation of sounding, with the ulterior view, if a stone should be detected, of advising its extraction, seeing that in a number of instances the removal of the stone from the duct by the surgeon's knife offers the only chance of saving the patient from an untimely grave.—*Medical Times and Gazette, July 5 and* 12, 1884, *pp.* 7, 43.

DISEASES OF THE URINARY ORGANS.

37.—CYSTINE IN THE URINE SUCCESSFULLY TREATED BY LARGE DOSES OF CARBONATE OF AMMONIA.

By Lionel S. Beale, M.B., F.R.S., Professor of Medicine in King's College, Physician to King's College Hospital.

Cystine is one of the most persistent of urinary deposits. After it has once appeared it may be produced, and in considerable quantity, over a period of twenty years or more, or its production may only cease with life. It is among the least common of urinary deposits, and usually its presence is not associated with any symptoms more serious or definite than malaise, a feeling of weakness, fatigue, or exhaustion, with depressed or very low spirits. One of the most remarkable cases of cystine deposit which I ever saw came under my notice many years ago, and has been under observation for fifteen years or more. During part of this time I saw the patient very frequently, and made many examinations of the urine, of the deposit, and of the calculi, which he passed in considerable numbers.

The patient (E. H. O——) was a fairly healthy-looking man, of thirty, 5 ft. 5½ in. in height, weighing 9 st. 6 lb., who was by trade a packer, an occupation involving pretty hard work and long hours. For four years before he came to me he had suffered more or less from lumbar pain and discomfort about the thighs, especially on exertion, and he often felt weak and low. He sometimes had to walk with a stick and had had to give up work now and then for a week or two at a time. About two years after the first commencement of the symptoms he suffered from a fixed pain in the left groin, and soon afterwards several stones were passed, sometimes to the number of twelve or more at once. One of the calculi, however, was so large that it remained in the bladder, and Mr. Coulson had to crush it.

I put the patient on carbonate of ammonia and told him to increase the dose gradually until it amounted to about fifty grains a day. He found the remedy agree with him so well that he soon exceeded this quantity, and for twelve months he took as much as fifty-five grains daily on the average, on some days consuming much more, on others considerably less, than this amount. In this time he did not pass as many calculi as before he had passed in a single month, and his weight increased to 9 st. 11 lb. In the next year he took about thirty-five grains of carbonate of ammonia per diem, and in the following only an average of about twenty grains a day. This patient's family history was not very satisfactory. His mother died at the age of fifty-two of phthisis, and two sisters died under the age of twenty-five of the same disease. He did not look a strong man, and the muscles of his arms and legs were below the average size and prominence. When a young man he used to take violent exercise and rowed in races. The quantity of urine passed was generally about the average, and never exceeded three pints. Every specimen that passed during a period extending over at least five years, he feels sure contained cystine. Afterwards the cystine was very frequently detected in considerable quantity. The crystals could be seen in the urine immediately after it was passed as small sparkling grains. The ammonia not only diminished the formation of the cystine, but the patient found that while he was taking it his bowels acted freely and he never required an aperient, although previously he had been much troubled by obstinate constipation. When the ammonia was not taken he says he did not feel as well as when he was taking it. He found no inconvenience from taking these large doses of carbonate of ammonia, and soon became so accustomed to the taste that he did not object to it in the least. I have seen this patient at intervals during the last few years, and although cystine in small quantities was generally present in the urine, it gave him no inconvenience, and no calculi seem to have been formed for the last three or four years. In this case, then, cystine has been found in large or small quantity during the period of at least eighteen years, and for the first five or six years of this time hundreds of cystine calculi were passed, the largest being about three-eighths of an inch in diameter, the smallest not larger than the head of a very small pin. The cystine crystals formed a visible whitish deposit, which varied much in quantity, even from day to day, but sometimes formed a sediment.

Another case was that of a gentleman about fifty, who had suffered from abundant cystine deposit for two years before I saw him, and had passed seven or eight renal calculi, some of them beautifully crystalline, and entirely composed of cystine. This patient took fifty grains of carbonate of ammonia dissolved in two ounces of distilled water three times a day after a meal for upwards of two years without any inconvenience, and during this time he had not even once required an aperient. If he gave up the ammonia he did not feel "up to the mark." As the amount of ammonia seemed very large in proportion to the water in which it was dissolved, I had twenty-five grains of Howard's volcanic carbonate of ammonia dissolved in an ounce of distilled water, and found that, although it tasted very strongly, it was not caustic. On inquiry, Mr. D—— informed me it was only gradually that he reached this degree of concentration, but that he experienced no difficulty in taking it. He took it immediately after a meal—"on an empty stomach it produced nausea." For three years, with scarcely an intermission, 1050 grains of carbonate of ammonia were taken per week. The cystine deposit ceased during the last year of taking the medicine, and three years have now passed without its recurrence. I think, therefore, we may regard this case as really "cured" by the large doses of carbonate of ammonia.

It is to be feared that the tendency in the present day is rather to prescribe new remedies which are being continually introduced than to select from old ones such as are known to have valuable properties, and which have been proved by long experience to be really beneficial in certain pathological conditions. Far from condemning the new because they are new, like all who know the extreme value of such things as salicylate of soda and bromide of potassium, I am most anxious to acknowledge my gratitude to those who devote themselves to the study and the discovery of the healing properties of every substance that can possibly be of use in treatment. But, while I am desirous not to say anything that could suggest to the reader that I am condemning the new things, I would impress upon the rising generation of practitioners the importance of being careful not to neglect the old. One cannot but desire that a drug like ammonia, so valuable in many forms of disease and departures from the healthy state, should not be forgotten or laid aside. The cases of cystine deposit to which I have drawn attention prove not only that large quantities may be taken without detriment or inconvenience, but that the use of the drug may be continued for a considerable period of time with advantage, and without the slightest derangement of any of the physiological processes being occasioned.

In our endeavours to help those who have acquired the vicious habit of consuming too much alcohol, ammonia is of great use, but it ought to be given in doses far larger than those in which it is usually prescribed. One of my patients assures me that he found ammonia very beneficial, that it relieved him of the feeling of tiredness from which he frequently suffered, and enabled him to perform hard work without getting exhausted. Not only have I found great benefit result from giving ammonia in considerable doses in many low forms of illness, but I have experienced its good effects by taking it myself. It acts very differently from any form of alcohol, although its effect upon the patient as judged from his own sensations appears to be somewhat similar. Though no feeling of hilarity seems to be induced by it, the lowness and depression of spirits and the tired feeling affecting the muscles, or rather the nerves and nerve centres by which they are supplied, are often removed in the course of half an hour or less by a dose of ammonia.

The cases I have adduced are sufficient to show that ammonia may be given in much larger doses than are generally prescribed, and that it need not be diluted to the degree generally supposed to be necessary. We used to be taught that five grains of carbonate of ammonia should be dissolved in at least an ounce of water, but as one of my patients took as much as twenty-five grains per ounce, and continued this three times a day for three years, we may feel satisfied that a solution of from ten to fifteen grains per ounce may be taken without difficulty, and I have prescribed this as often as once an hour in cases where the heart's action was very feeble and a decided stimulant was evidently necessary.

The public have discovered the value of sal volatile in cases of cold-catching and many minor ailments, but ammonia, like many other substances of real value in the treatment of many departures from the healthy state, has lately been somewhat neglected, and is, like some other valuable remedies, in danger of being forgotten amid the multitude of new preparations which thrust themselves upon our notice; and it is therefore desirable that attention should be directed to its usefulness, as well as to the value of many other drugs which have been of real service to past generations of patients.—*Lancet, August* 30, 1884, *p.* 363.

38.—ON ALBUMINURIA ASSOCIATED WITH NERVOUS AFFECTIONS.

By Dr. Mortimer Granville.

There are two classes of cases of albuminuria which fall under the observation, especially—perhaps almost exclusively—of practitioners among the subjects of nerve-trouble and the "nervous." As a matter of fact, I have reason to believe the presence of albumen in the urine of patients of the classes I am about to indicate is not generally recognised. This is why I am desirous of calling attention to the matter; and further, because I believe that what happens to these persons may happen to others who are practically healthy.

1. A young man, whose genito-spinal centre has been unduly excited, as often by fighting against his passions as by giving way to them—the cerebro-spinal irritation being not less in one case than in the other—falls into a miserable condition of mental, and a feeble state of bodily, health. He complains, among other ills, of pain in the back, not over the spine, but over the region of the kidney, generally on one side only or chiefly, and preferably the right. There is pain on pressure, the pain of tenderness, as commonly happens in neuralgic affections of the viscera when complicated with vasomotor depression and consequent atonic congestion, the supposed diagnostic value of "pain on pressure" notwithstanding. The sufferer goes to a physician: not for albuminuria, of course. Of this he knows nothing, and in proportion of instances the practitioner knows nothing of it either. He does not examine the water, because he probably regards the case as one of "backache," from masturbation, which it is not; or, if he does suspect anything, it is "kidney disease," and when he finds a trace of albumen he is confirmed in this diagnosis. I do not know which is the worst misfortune, that the physician should overlook an instructive scientific fact, or that he should misinterpret the clinical phenomenons and frighten his patient. The consequences of scaring young men and their friends with

albuminuria are very terrible. Many a victim of this mistake leaves the consulting room of his inapt or unfortunate physician miserably ruined. It may seem that this is a strong expression; but I am not overstating the facts. I could show you such science-made wrecks. They would fill a terrible register. They, unhappily—with infinite pity and regret be it said—number among them too many students of medicine and promising young members of our profession. These are not cases of the "albuminuria of puberty," or of "adolescence." They may, or may not, be "intermittent" or "transitory." They are simply cases of vasomotor disturbance, producing first constriction and then atonic dilatation of the capillaries with either increase or diminution of the amount of urine excreted. The albumen is not always constantly present, but it is very commonly found, and may nearly always be detected, by heat and nitric acid, in the urine collected for twenty-four hours. The urea is either greatly in excess, reaching as much as 15 to 20 grs. per oz. instead of 8, or diminished, sometimes falling as low as 4 grs., according to varying conditions not easily formulated, but probably dependent on the general relations of assimilation and disassimilation throughout the body. The other type of albuminuria is one in which the patient is middle aged, and has been, or is still, intellectually active, but he suffers from intense "nervousness," with agoraphobia or claustrophobia, sometimes both. He, too, has albumen in his urine, but it is not generally either high in percentage or persistent, and it often alternates with sugar, thus pointing significantly to the fact that the seat of the disturbance is within the cranium, though in some cases I have found reason to think that the focus of the excitation lay at the cilio-spinal centre in the cervical region.

What I especially desire to bring before you is the fact that the albuminuria in these cases is simply and purely of nerve origin, and if disease of the kidney should ensue, which is a possible contingency, it will be the effect, and not the cause of the albuminuria, or rather the result of that disturbance of nutrition to which the nerve trouble has given rise. It is, I am convinced, an error in diagnosis to place the albuminuria in the front place in these cases, and the consequences of so doing are too commonly disastrous. The pathology of such cases I believe to be as follows:—Some cerebral or reflex excitation of frequent occurrence or long continuance has rendered the vasomotor centre, or a particular system or series of the vasomotor nerves, debilitated and preternaturally irritable, with the result of causing the coats of the vessels supplied by these nerves to become unduly lax in their structure and deficient in their tone. At first they contract spasmodically, and then they dilate excessively, so that they, and the afferent vessels of the Malpighian bodies, are readily congested. In fact, I see no reason why, under the influence of nervous depression and vasomotor disturbance, the kidney may not become œdematous as a hysterical joint. The persons affected as I have described are nearly always subject to flushings and pallors, to local perspirations and shiverings; they are either very emotional or reserved, and for the most part lead melancholy or studious and solitary lives. If you ask me why the renal vessels should be specially affected in such organisms, I reply, because the anatomical structure and the physiological function of these vessels combine to render them peculiarly prone to lose tone and become congested whenever the blood pressure generally is increased. The proposition I desire to lay down is this; that in the nerve disturbances and excitations, to which these patients are subject, are to be found sufficient causes of the albuminuria which occurs in their cases; and I further submit that the operation of the same causes, in a transitory way, in persons of average health, may and does produce like results. The plea I have to urge is that these cases of cerebro-spinal or nerve-albuminuria, differing as they do from cases of "physiological albuminuria," may be recognised and set apart. To this end members of the profession generally will do well to examine the urine of *all* their patients, both for albumen and for urea. The two tests ought always to go together, and the precaution should be taken of collecting the urine for twenty-four hours, neither more nor less, so that the proper number of meals may be included. Note should also be made of special excesses in diet, particularly excesses in the use of any one kind of food.

The protest I feel bound to make, and it is, from my point of view, at least a very serious one, is that by confounding such cases as I have attempted to indicate with the ordinary class of cases of albuminuria dependent on kidney disease, men and women are mentally depressed and distressed, and left to drag out cheerless and useless lives. I have said that I have seen young men with nothing really serious the matter with them ruined by a misconstruction of the fact of a trace of albumen found in the urine. I have seen women distressed beyond measure, and in their dejection so distraught that they have been with difficulty prevented from destroying themselves. I have at this moment, in my recollection, the case of a well educated woman, the mother of a family, who was reduced to this extremity, and placed in this jeopardy, by the discovery of a little sugar in her urine! Let me plead for a more general and a wiser use of the urinary-test-case. If we do not take pains to prevent misconception in our own minds, it is vain to hope we can prevent the needless alarm of our patients. It is not necessary that the physician should tell what he finds when he discovers albumen, his face and his prescription reveal the fact. We live in a day when a little learning in physiology and medicine is only too likely to drive the nervous patient mad. The area of probable error and the possibilities of mischief have been so largely increased of late, for example, by the introduction of such untrustworthy tests as picric acid and the like, that I felt bound to take advantage of this almost unique opportunity of bringing the matter under the serious consideration of the profession, and of raising a warning voice against what I believe to be one of the worst abuses of the scientific method, which the progress of medical science in this or any other age has witnessed, and which it is as necessary to expose as it is impossible not to deplore.—*Glasgow Medical Journal, April,* 1884, *p.* 253.

39.—ON ALBUMINURIA AND THE SYMPTOMS WHICH INDICATE ITS GRAVITY.

By Dr. F. A. Mahomed, Physician to Guy's Hospital.

The following experimental results had all been well ascertained and were generally accepted by the leading authorities :—1. That albuminuria can be produced by ligature of the renal veins. 2. That albuminuria may result from injecting egg albumen or peptones into the blood. 3. That albuminuria is produced by exudation from the Malpighian glomerules; this was proved by the experiments of Nussbaum, and also by others of a different nature by Ribbert, Posner, and Litten, who also proved that albumen was not found in the glomerules or tubules of the healthy kidney. 4. That albuminuria might be produced through the nervous system by irritating the spinal cord after division of the vasomotor nerves of the renal arteries; by other direct or reflex disturbance of the nerves controlling the circulation through the kidney. 5. Albuminuria could be produced by cutaneous asphyxia. 6. By the disordered nutrition of the walls of the blood-vessels, tubules, and epithelium. 7. The experiments on the production of albuminuria by increasing the arterial pressure were discussed at length, and the difficulty of raising arterial pressure by compression of the aorta was demonstrated by experiments performed by the author in 1875. The fallacies of several experiments on this subject were pointed out, while the evidence of Dr. Michael Foster on the production of albuminuria by increased arterial pressure, when the renal arteries were dilated, was quoted. The inability of the physiologists to produce variations of arterial pressure by retarding or accelerating the capillary circulation was pointed out. A suggestion was made that investigations into the variation of the tension and the rapidity of the interchanges of the gases in the blood and tissues were urgently needed. The theory propounded by Prof. Hamilton that the increase of arterial pressure was due to the diminished specific gravity of the serum was criticised, and it was pointed out that the specific gravity of the serum was not usually decreased to any considerable extent in Bright's disease; the observations of Quincke were quoted in support of this statement. The sp. gr. having been observed only in cases of long standing disease, the alteration was probably very gradually induced; on the other hand, it was shown that in order to satisfactorily account for the increased arterial pressure of Bright's disease it was necessary that the alterations in specific gravity should be very rapid, that they should occur in a few hours. A belief in such a rapid change of gravity was contrary to the results of all previous physiological experiments on the subject. The observations of Runeberg on dialysis through compound membranes were condemned as incorrect and misleading.

The evidence afforded by clinical observation and morbid anatomy concerning the causation of albuminuria was passed in review, and classified under the following headings:—

1. Albuminuria produced by obstruction to the venous circulation; under this head was included the albuminuria due to heart disease and similar conditions, to the enfeebled and retarded venous flow in fever, anæmia, and conditions of extreme prostration.

2. Albuminuria produced by errors of diet or digestion, such as that produced by a diet largely consisting of white of egg (hæmatogenous albuminuria).

3. The influence of the nervous system was alluded to, and the observations of Laycock, Fürbringer, and Sir Andrew Clark were quoted.

4. The intimate association between the skin and the bowels was demonstrated by the author's paper on scarlatinal albuminuria. The cases of albuminuria produced by inunction for scabies, by Lassar and Unna were quoted.

5. Alterations in the tissue of the blood-vessels, tube walls, and epithelium were held to be sufficient causes of albuminuria in acute nephritis. Observations on the morbid histological appearances of the kidney were made; the so-called glomerular nephritis was not confined to cases of scarlatina; the unity of Bright's disease was affirmed.

6. The previous observations of the author showing the close relation between increased arterial pressure and albuminuria in scarlatinal nephritis, and other more chronic conditions, including pregnancy, were described.

The rapidity of the circulation of the blood in the normal Malpighian glomerules, owing to their immediate connection with large arteries, and also to the large size of their capillaries, was dwelt upon; it was pointed out that the circulation in them was probably more rapid than in any other capillaries in the body, and conclusions were drawn from the well ascertained facts previously enumerated that *retardation of the glomerular circulation*, combined with increased pressure in and increased distension of the glomerular vessels, were the chief factors in the causation of albuminuria; it was pointed out that while water might readily transude from the glomerules under normal pressure, albumen being less diffusible would probably be retained, but that slight delay and increased turgescence in the glomerules might permit of the exudation of paraglobulin and other more diffusible forms of albumen, and subsequently, if the obstruction increased, of serum albumen.

The immediate causes of albuminuria were thus classified:—

1. Increased glomerular pressure and slowing of the blood stream in the glomerules:—
   - *a*. From general increase of arterial pressure with local hyperæmia of the kidney, due to disorder of other excretory organs, especially of the skin and bowels. This may occur as a functional condition.
   - *b*. From general increase of arterial pressure, aided by the augmented distension of the glomeruli by obstruction of tubular plexus, either by expansion of tubules by proliferated epithelium, or to compression of plexus by fibroid growth. This condition is necessarily due to organic changes.
   - *c*. From increase of arterial pressnre in the kidney, due to derangement of the nervous system, either local, general, or reflex. This may be purely functional, or may accompany organic changes.
   - *d*. From obstruction to the return of the venous blood. This may be due to a functional condition or to organic changes in other organs.
2. From alteration in the tissue of the blood-vessels, tube walls, and epithelium, by acute inflammation or infarction.
3. From chemical changes in the blood, especially the presence of abnormal forms of albumen in the blood serum.

The question of what is meant by albuminuria was then considered. It was stated that a very large variety of albuminous bodies were found in the urine, and that the form of albumen present in any particular urine was probably constantly undergoing changes from the moment it was secreted until many days afterwards. It was stated that the same specimen of urine frequently gave different reactions with the same tests at different intervals of time after it was passed. It was shown by many examples that heat and nitric acid each failed to detect the presence of albumen in the urine in some specimens, that they did not precipitate peptones, or that form of albumen which was mistaken for them, and which the author believed to be paraglobulin ; it is well known that they often fail to detect many forms of acid and alkali-albumen, including syntonin and myosin. For these reasons the use of such tests as the brine test, picric-acid, and potassic-mercuric-iodide were advocated. It was stated that these were exceedingly delicate and good *negative* tests, but that their results required to be checked by other tests, such as the ferrocyanic pellets, which did not precipitate peptones. The fallacies of a large number of tests were then pointed out, and their respective advantages were indicated. A small and convenient pocket case, containing only dry tests, and combining Dr. Pavy's and Dr. Johnson's pocket tests, with other necessary apparatus, was exhibited.

It was shown that many cases occurred in which albumen detected by nitric acid and heat alternated with a form of albumen only recognised by the more delicate tests, especially brine and picric acid. The albuminuria occurring in apparently healthy persons was considered. The author stated that he had found albumen in the urine in *nine* out of *fifty-eight* persons (namely in 15·5 per cent) thought to be healthy, whom he had examined previous to life insurance during the past year. Details of the cases in which albumen was found were given, and it was shown that seven out of the nine cases were clearly not in perfect health; it was suggested that many such cases were produced by temporary functional disturbance.

Albuminuria was divided for diagnostic purposes into several groups:—

1. Cases of fully developed Bright's disease.

2. Cases with the cardio-vascular symptoms and changes of Bright's disease, but with only slight or occasional albuminuria. These belonged to the class described by the author in a previous paper as cases of "Bright's disease without albuminuria." They presented very varied aspects.

3. Cases in which the albuminuria was considerable and prolonged. These were divided as follows—

a. Those with no other symptoms of Bright's disease; the arterial pressure not being increased. The quantity of albumen being small. Prognosis good.

b. Those without increase of arterial pressure, but with occasional œdema. The quantity of albumen being large. Prognosis hopeful.

c. Cases in which the albuminuria is persistent, and is associated with increased arterial pressure. Prognosis grave, but never hopeless.

4. Cases of temporary and intermitting albuminuria associated with anæmia, debility, or some other condition which can be easily recognised.

Several cases, with sphygmographic tracings, illustrating these groups were related.

It was pointed out that Bright's disease had two distinct aspects—the renal and the cardio-vascular, and that either of these might be present for many years without producing any symptoms or causing any anxiety; the existence of these symptoms merely tells of possible danger in the future. If both albuminuria and high arterial pressures exist in the same case the cause for anxiety is greatly increased. The chief advantage of recognising the condition is the key it gives us to the general management and treatment of the case, and of the most effective way to deal with the inter-current ailments which may from time to time arise.

In conclusion, Dr. Mahomed wished to briefly state his own views concerning Bright's disease:—The first step is the existence of an acute or chronic form of blood poisoning, either due to some definite poison, such as scarlatina, lead, or alcohol, or to the blood being laden with an undue quantity of excrementitious material. This produces two important results, a rise of arterial pressure from impeded capillary circulation and a more or less severe functional hyperæmia of the kidney, this being the chief excretory organ of the body; the other excretory organs—namely, the lungs, gastro-intestinal mucous membrane and the skin being liable to be more or less affected. The recognition of this condition led Dr. Mahomed to describe the condition, ten years ago, as one of chronic or acute excretory congestion. When this condition exists, either a chill, or constipation, or an excessive amount of the poison may increase the hyperæmia to a condition of more or less severe inflammation, and this gives rise to albuminuria by further impeding the circulation through the glomerules. If, however, no inflammatory congestion takes place and the condition is a chronic one, albuminuria may be only occasionally present, and that in small amount; but the cardio-vascular changes, produced by high arterial pressure, develop—the vessels thicken, and the heart hypertrophies. The glomerular capsules also thicken and exert rather a protective influence over the glomerular vessels, assisting to prevent their over-distension, and to obviate the tendency to albuminuria. On the other hand, the changes in the capsules may advance too quickly till they strangle the vessels they contain, or the inter-tubular changes may be considerable, and by compressing the tubular plexus may induce albuminuria. Thus, the renal symptoms liable to present themselves depend upon the severity and degree of the changes that occur in the kidneys.—*Glasgow Medical Journal, April* 1884, *p.* 257.

40.—ON THE CLINICAL SIGNIFICANCE OF ALBUMINURIA: INFLUENCE OF TOXIC AGENTS.

By Dr. James Finlayson, Physician to the Western Infirmary, Glasgow.

When viewed broadly, albuminuria seems to me to be oftenest due to the influence of poisons operating on the system, or at least to the presence of grave constitutional disturbance having many points of resemblance to that induced by acute or chronic poisoning.

Various poisons are known to give rise to albuminuria, and if need were I could enumerate a long list from the text books; but I will take as a *type of acute poisoning*, Cantharides; and of *chronic poisoning*, Lead; while intermediate between the acute and chronic forms, and combining both, we have the well known poison Alcohol.

The acute type is well represented by cantharides. I had just lately the opportunity of observing albuminuria developed in a girl from the application of a blister for a pleuritic attack, Her urine previously was free from albumen, but after the blister albuminuria (without blood or other signs of strangury), supervened for a few days, and in the urinary sediment we found tube casts and other evidences of a renal affection. Now, in searching for conditions resembling acute poisons, we are forced to think of the great group of infectious fevers. In October, 1876, I had the opportunity of examining the urine of a girl affected with malignant pustule or anthrax, whose case was subsequently brought before this Society by Dr. Hector C. Cameron. I found her urine highly albuminous; going upon the old rough method, there was a sediment of $\frac{2}{3}$ of the amount operated on after it had been boiled and allowed to settle for twelve hours. I found, likewise, tube casts in the sediment in abundance. I select this somewhat rare disease first, because its pathology has been determined more thoroughly than some others, through the labours of many distinguished men, amongst others Prof. Greenfield, who has honoured us with his presence to-night. Their researches have shown that this disease is due to the presence in the blood of a multitude of specific organisms. But the whole group of the *specific fevers and exanthemata* are evidently closely allied to this disease as to their pathology, although many of them have not yet been so clearly demonstrated to be due to living organisms in the blood; we have small-pox, typhus, enteric fever, scarlet fever, relapsing fever, measles, puerperal fever, erysipelas, diphtheria—all these very often present albuminuria in their height.

Coming to another group of diseases, we have *pneumonia, pleuro-pneumonia, and acute tuberculosis,* which often have this complication. Ever since I have taught clinical medicine, I have insisted on the close resemblance which pneumonia presents to the specific fevers, and I think of late a very general tendency of opinion exists in this direction throughout the country; and confessedly, we have at times epidemic or infectious pneumonia. The very name, pleuro-pneumonia, suggests to our minds the infectious disease in cattle, although, of course, I do not insist on this. Acute tuberculosis is claimed by the strong advocates of the bacillus tuberculosis as a fever due to a specific organism; but without requiring to advance this doctrine, we must all admit the very close resemblance which this disease presents to a specific fever.

Coming to *rheumatic fever and rheumatic pericarditis,* we are again in presence of some poisonous material in the system, or a condition allied thereto (some, indeed, assert the existence of a specific germ), and here also we often have albuminuria.

Now these cases of albuminuria are not explicable simply on the score of high fever and excited circulation, for we often find in diphtheria, for example, very distinct albuminuria without much fever, and, indeed, without much constitutional disturbance of any kind.

I come now to *scarlet fever, erysipelas, and small-pox.* In these diseases we have already seen that we often have albuminuria at their height, but we often also have albuminuria as a *sequela;* with regard to scarlet fever this is admitted by all; with regard to erysipelas I think it is also admitted pretty generally, and, at least, I myself feel sure of it; with regard to small-pox, fortunately we have not often in Glasgow the chance of observing it, but in the epidemic occurring here ten years ago, Dr. Gemmell studied the occurrence of this sequela of small-pox at the hospital here. Now all these diseases concur in affecting the skin in the height of the illness, and they also all affect the skin secondarily—scarlet fever and erysipelas by desquamation, and small-pox by the casting of the dried scabs. This combination suggests strongly the connection, forced on our attention in many ways as physicians, between the skin and the kidneys; and perhaps it may afford a clue to the connection, generally admitted, between the *influence of cold on the cutaneous surface and the occurrence of acute nephritis.* At any rate, the connection is suggestive, and one cannot keep out of view the old experiments of varnishing the skin of animals as possibly leading to the retention of noxious materials; in these experiments the animals, when the process is fully carried out, seem to die rapidly with low temperatures, but when less completely done, there are febrile symptoms developed, and along with these we have albuminuria.

The next great group of cases to which I must refer depend on *pregnancy*. From the nature of my practice, I cannot, of course, speak of this matter from any great personal experience; but I never felt satisfied that the simple explanation of pressure met the facts of albuminuria in pregnancy, and it seemed particularly inapplicable for those cases occurring in the early months. Ten or fifteen years ago, my attention was directed to such cases, and I was much struck by the remarkable resemblances which pregnancy often presented to various acute and chronic diseases; indeed, I intended at one time to have pursued this inquiry from the literary and historical point of view, and so I read with great interest, when it appeared, the very able contribution of Dr. Barnes on "Pregnancy regarded as an experiment illustrating general pathology." In particular, I was arrested by the striking resemblances presented, in some cases I knew of, between the sequelæ and complications of pregnancy and the puerperal state and those of scarlatina in children. Now, in the pregnant woman we have an independent germ, so far, living and multiplying its cells with enormous rapidity, at the expense of the mother's blood, leading thus confessedly to very marked changes in the composition of the blood of pregnant women; and so we have a kind of comparison between this condition and the state of system we find in anthrax already referred to. But further, we know, at least it is so stated by good authorities, that the vitality of the fœtus has an important bearing on the occurrence of the signs of pregnancy, the tumid breasts, and the morning sickness disappearing with the death of the fœtus in utero. And I was much struck in reading Dr Leishman's *System of Midwifery*, to find a case occurring in the practice of Dr. Maclaren, where a lady, who had been affected with albuminuria from the 6th to the 8th month, suddenly became relieved of her dropsy and albuminuria, apparently at the very time the fœtus died, so far at least as could be judged by its appearance when expelled a week afterwards. This case, no doubt somewhat exceptional, seems to throw a distinct light on this interesting subject.

The *chronic type* of poisoning leading to albuminuria is well represented by the poison of lead. We in Glasgow know but little of this from personal observation; at least I speak for myself, and if I am wrong, or if my experience is exceptional, some of the physicians in our hospitals will no doubt correct my error. But the influence of lead in producing albuminuria is certified by so many and by such eminent authorities in London, that we may at once accept it as a fact. Probably the explanation of our knowing but little of this connection is this, that both lead poisoning and gout in a distinct form, which combine to affect the kidney, are really very uncommon in our hospital patients here.

Amongst chronic diseases having resemblances to chronic poisoning we have, first of all, this same *gout*, which is so closely connected with albuminuria as to have given rise to the name of the "gouty kidney."

Then we have *rheumatism*, which is, so far, allied to gout. I have already spoken of acute rheumatism giving rise to albuminuria in its height, but I have long felt satisfied that it sometimes operated in a more chronic way, and I was glad to find on reading Dr. Dickinson's new edition in 1877 that he believes in this influence also.

Next we have *syphilis*. Of the causation of albuminuria from this poison, apart from the amyloid degeneration, I cannot speak from any observations of my own; but the name syphilitic albuminuria and the fact also seem generally admitted in medicine.

In *jaundice* we have a poison circulating in the system, and here also we frequently have albuminuria; but as I showed to this Society in 1874, we may have *abundant renal tube casts* in the sediment of jaundiced urine, even when the ordinary tests fail to detect albumen, showing thus a special influence operating on the kidney in this disease.

In *diabetes* we have, towards the end, a pronounced form of poisoning, and here, too, we often have albuminuria leading up to the fatal termination.

The next group of cases complicated with albuminuria is that important class known as *scrofulous* or *phthisical*. I have long been impressed with the importance of this group of cases of albuminuria—occurring quite apart from pronounced amyloid degeneration—and I was glad to see that Dr. Theodore Williams called attention to them in his recent admirable papers in the British Medical Journal. Now, here again I do not wish to contend for any extreme views as regards the dependence of these diseases on specific germs, in which case the relationship to poison is at once manifest; but, in any view, we have certainly a grave constitutional disturbance which some have thought can bear this comparison.

We come now to the important subject of *alcohol* as causing albuminuria. With alcohol we may have acute poisoning, as it were, from a short-lived influence, leading to albuminuria. Or we may have sub-acute poisoning leading up to delirium tremens, and alcoholic convulsions, in which condition in the few cases occurring in my experience we usually have albuminuria. But we may also have albuminuria determined by alcohol in a more gradual and chronic manner. For I think all hospital physicians in Glasgow will be disposed to agree in acknowledging the influence of alcohol in determining Bright's disease. Dr. Dickinson, indeed, is disposed to deny this, or at least to refuse to admit it very freely and fully; and he discussed the question on the basis of the statistics of cirrhosis of the liver. It has occurred to me some years ago, as a very curious fact, that while in Glasgow we could not claim for our population an excessive care in the use of alcohol—rather indeed have we to admit the reverse—the occurrence of typical cirrhosis of the liver, while by no means a pathological rarity, is equally by no means a common disease as judged by its detection in the hospital dead house; and it is much less common in our wards, so far as we can guess, than it is in similar hospitals in London or Manchester. I have not searched the post mortem records, but I appeal to Dr. Coats as a pathologist if I am not substantially correct. Now, it has occurred to me that with our wet climate here, and with a large proportion of our population employed in out-door work, or at least in work which exposes them very much to the weather—in the shipbuilding yards, at the harbour, &c. (or to damp in the coal mines)—we may have the injurious influence of cold on the surface leading to an affection of the kidney rather than cirrhosis of the liver, from the influence of alcohol.

There only remains one great group of cases, viz., the *amyloid or lardaceous forms of kidney disease.* These are well known to be produced by three leading causes. Of (1) phthisis I have already spoken. In (2) chronic suppuration we have, according to Dr. Dickinson, who has studied this matter carefully, a deterioration of the blood from a deprivation of some of its constituents. I do not care to contend that this is very closely allied to the phenomena of poisoning, although, if time permitted, I could adduce some reasons in favour of such a view. In any case, we have the grave constitutional state to which I referred at the outset. (3) The third recognised cause of amyloid disease is the well known poison of syphilis.

In this rapid review of the subject, I think I have adduced enough to show the great importance of toxic agents in the production of albuminuria.—*Glasgow Medical Journal, April* 1884, *p.* 262.

41.—ON THE PATHOLOGY OF ALBUMINURIA.

By Dr. W. S. Greenfield, Professor of Pathology in the University of Edinburgh.

The statements made by reliable observers support the view that albumen may appear now and again in the urine of apparently healthy persons. Such observations as those of Leube and of Dr. Mahomed may be regarded as authoritative. With regard to Dr. Saundby's statistics, they are so entirely contrary to the experience of others that I am convinced there must have been some fallacy in the method of observation. It is a remarkable thing that it is extremely rare to find albumen in the urine of candidates for life assurance who are otherwise apparently healthy, and that with the systematic examination of the urine in hospital wards cases rarely occur in which we cannot assign some definite cause for its presence. There are cases—I have had such under my own care—in which there was no evidence of disease beyond the presence of albumen in the urine, and in these cases not merely intermittently, but in one or two cases continuously, during a period of some months, though in variable quantity. In the cases to which I refer there was neither dropsy nor cardio-vascular change, and none of the various disturbances which we find in Bright's disease; the subjects were especially anæmic young women. The urine was usually pale, clear, of low specific gravity, often phosphatic, and contained neither casts nor blood. But are we on this account to say that there is no disease, that it is a physiological albuminuria? I believe that as pathologists we are bound to allow of no such conclusion without the most exhaustive analysis and conclusive evidence. Structural alteration we may be unable to detect, but the greatest advances in pathological research have been made in the endeavours to discover organic lesion where none was apparent, and it would be a retrograde step if we as pathologists allowed that so important a condition could exist without definite organic cause.

There is one fallacy in particular that I may point out. It is a well known fact that extensive disease may exist in the kidneys, remaining for a long period entirely latent, and reveal itself by some terminal fatal phenomena, or be discovered only after death. I have for some years made it a special object to examine all kidneys, whether obviously diseased or no, whenever opportunity permitted, more especially in cases of men dying over the age of 30, or dying from acute diseases of all kinds, and have been struck with the frequency with which changes of an extensive character have been found where none were suspected during life. In the case of accidents or operations which do badly, and in fatal pneumonia and erysipelas one frequently finds extensive renal changes; and even where there is no obvious naked eye lesion we constantly find in persons, especially men of the ordinary intemperate habits of the working classes, extensive degenerative changes belonging to the same kind as those found in chronic Bright's disease.

Now, this being the case, the presence of albumen in the urine from time to time may be, and I am convinced frequently is, an indication of acute renal change, limited perhaps for the time to a small area of the renal tissue.

Still further, the defective recognition of the morbid appearances in diseased kidneys frequently leads to errors even on post mortem examination, and I have repeatedly detected in kidneys which had been sent to me as perfectly healthy, evidence of advanced disease.

Such being the case, and the well known facts of the latency and chronicity of Bright's disease being kept in view, we, as pathologists, cannot admit a physiological—that is to say, a healthy albuminuria.

There is another point of a clinical nature to which I would for a moment allude, namely, the curability of Bright's disease, both in its more severe and in its slighter forms. The kidney has been looked upon as if it were an organ outside the control of ordinary physiological and pathological laws. We speak of diseases of the kidney as if they were some mysterious phenomena differing in their course and relations from the diseases of other organs. Now, this is not only pathologically but clinically an error. The kidney, as Dr. Gairdner has well remarked, is liable to a large number of diseases precisely similar to those of other organs, and there is no conceivable reason why disease of the kidneys should not be curable just as are diseases of other organs. Scarlatinal nephritis, for example, however severe, may, as we know, be perfectly cured so far as the healthy performance of function, and what we call practically health, is concerned. We must all have seen cases of persons who had been at the point of death from post-scarlatinal dropsy, with scanty highly albuminous urine, who are now, after the lapse of years, in good health, with functionally healthy kidneys, and without cardio-vascular changes; and, as I shall endeavour to show, post-scarlatinal nephritis is closely analogous to other inflammations of the kidney in its later stages. I hope later to refer to a case of cure of acute nephritis where I had an opportunity of examining the kidneys after death from other disease. And I have seen some of the lesions of more advanced Bright's disease completely disappear under treatment. I had under my care for more than two years a man who was suffering from what is called chronic inflammatory Bright's disease, which had come on with an acute attack more than a year before. He had marked dropsy, considerable hypertrophy of the heart, and high arterial tension, scanty urine always containing from $\frac{1}{3}$ to $\frac{1}{2}$ albumen; he was able, notwithstanding, to continue a light occupation. He developed under observation most marked albuminuric retinitis, which was of the degenerative form, with patches around the macula lutea, and served for some time as a subject for demonstration of that disease. Under observation, which was confirmed by my friend Mr. Nettleship, the retinitis entirely disappeared, the patient being treated by the old fashioned methods of free saline purgation, iron, and a largely milk diet.

Such facts as these, and the important observations in scarlatinal albuminuria quoted by Dr. Mahomed, show conclusively that many of the forms of Bright's disease are capable of great amelioration or of absolute cure, but just like an old pleurisy or an old pericarditis they usually leave behind structural changes which, though compatible with health, are readily recognised by the morbid anatomist.

Before I refer to the pathological changes, I may briefly mention one or two points in reference to the normal anatomy and physiology on which I must differ from Dr. Newman.

He has especially referred to the relative size of the afferent and efferent vessels of the glomeruli as an important factor in their circulation. But it must be remembered that although there is usually one efferent vessel, the exceptions are not rare in which we find more than one.

Again, there is this difference, that the afferent vessel is highly muscular, the efferent mainly elastic. The afferent is probably normally in a state of tonus, and readily contracts or dilates under the influence of stimuli. So that the relative calibre during life cannot be judged from the results of injections.

In the normal condition of circulation the volume of blood entering the glomerulus must equal that issuing, and the velocity will be, speaking roughly, inversely to the area of section. So that to speak of the circulation in the glomerulus as normally under increased pressure owing to the relative calibre of the vessels is an assumption not warranted by the facts. In other words, it has not been proved that the transudation of water in the quiescent condition requires any greater pressure than does the normal transudation of lymph from the capillaries.

If, however, the arteries be relaxed, the velocity of the stream issuing through the efferent vessel will be increased, and at the same time the pressure will be raised in the glomerulus, and if this exceeds that in the tubules increased transudation will occur.

As regards the other conditions of filtration of water from the glomerulus, we know that the condition of the blood, especially with respect to certain constituents, increases or diminishes it. Thus some saline bodies cause increased transudation, but whether they act directly upon the membrane or on the vessels, or their local vasomotor mechanism, we do not know. That this action continues when the nerves are divided we do know.

And let me add, in case I have no time later to speak of the results of the granular contracted and the waxy kidney, that the polyuria, which occurs during the former and the early stages of the latter, may very probably be due to loss of vasomotor control.

In one of the forms of cirrhotic kidney, as I hope to show, the primary or earliest change is a fibroid change in the arterial walls, which especially affects the afferent arterioles, and whilst it reduces their calibre greatly impedes their contractile power. So, too, in the earliest stage of the waxy kidney, the middle coat of the afferent arteriole is usually the first part to be diseased. So that in place of the normal alternations of pressure, and the regular diurnal passage of urine with long intermission at night, there is a continuous slight increase in the pressure, and hence a constant trickling of water through the tubules, which gives rise to the frequent micturition and its continuance during the night. I do not say that this is the *sole* cause, but it is probably an important one.

In cases where there is simply arterial degeneration without other structural change in the kidney, this polyuria may be accompanied by great increase in the excretion of urea; thus, in a case of the kind in which I examined the kidneys recently, the quantity of urea reached 800 grains per diem.

Now let me pass for a moment to the question, *Does albumen normally transude into the renal tubules?* If we find that a large number of altered conditions, many of them of extremely slight character, cause the presence of albumen in the urine, is it not in favour of the view that there is a mechanism, whatever may be its nature, which is very readily deranged, but which normally prevents the passage of albumen. If fevers of all sorts, and blood poisonings, various vegetable and mineral poisons, derangements of circulation due to central nerve lesion, alterations of pressure which we may call mechanical, produce albuminuria, must there not be some easily disturbed mechanism by which the passage is ordinarily impeded? Is there any great difficulty in the view that water only, or water with some readily diffusible substances alone passes out of the glomerulus?

If we compare the transudations from serous surfaces with each other, they contain as we know very variable proportions of proteids, including serum albumen. But the glomerular tuft, with its epithelial covering, is not the analogue of a serous membrane: may we not rather compare it with the salivary and gastric glands, from which very large transudations of fluid containing an extremely small quantity of proteids, and those of special kinds, and no serum albumen, is constantly secreted. For the capillaries are covered by a layer of epithelium, and although it is but a delicate thin layer, there is no ground for denying its secretory function.

The epithelium of the pulmonary alveoli is a still less distinct layer, yet it appears to suffice to prevent the proteids from transuding under normal conditions. The glomerular capillaries no doubt allow the transudation of the proteids of the blood, but so long as the epithelial covering is healthy there is no reason why these should pass into the tubules.

If time permits, I may bring forward some pathological evidence in favour of the view that the epithelium covering the glomerulus reacts in the same manner as a mucous epithelium, whilst that which lines the capsule reacts in the same way as a serous endothelium under pathological stimuli.

It must be allowed that the theory which has been mentioned as Ludwig's, but which I believe Ludwig has now abandoned, is a very seductive one, but I do not think it is now maintained by any physiologist who has made a special study of the renal secretion, and the weight of clinical, as well as of physiological and pathological evidence is entirely against it. The problem has not yet reached the stage of final solution, it requires further experiment, and I do not propose further to discuss it. But as illustrations of the practical difficulty in accepting this theory, we may ask, If albumen normally transudes from the glomeruli, why is it that in cases of hysterical or other nervous polyuria, in which an enormous quantity of urine is passed under the influence of a definite enotional excitement, and within a very short time, albumen is not constantly present? And why, in diabetes, where the quantity of water may reach 300 or 400 ounces per diem, does the presence of albumen usually indicate degeneration of renal structure, or some secondary complication? Again, why in many cases of advanced cirrhosis of the kidney, where the quantity of urine secreted is often large, and where the epithelium and the walls of the tubules have undergone very serious structural alterations, do we so rarely find albumen present?

I may now pass to the question, What is the intimate pathology of albuminuria? I must, owing to want of time, omit all mention of the conditions present in fevers, and in other states where there is no recognisable organic lesion in the kidneys, and consider only the conditions which we find in those forms of renal disease in which albumen is present. We may then inquire, How do they explain the presence of albuminuria?

Now, any satisfactory answer to this question must take into consideration all the varied conditions which may produce it, and we must not limit our attention to those which support or contradict one particular view; and in order to state any of the facts clearly it will, I fear, be necessary for me to enter with some detail into the minute changes found in the kidneys in the various forms of Bright's disease. For it is impossible, without minutely studying these changes, to form any just opinion of their effects; and I shall ask your permission to leave for the moment theoretical deductions whilst I state some points which do not appear to be sufficiently appreciated in regard to the morbid anatomy of the kidney, especially in those forms of disease which are related to albuminuria. We may group the more important of these diseases under waxy degeneration and its associated changes, inflammatory processes in the kidney (acute and chronic), and chronic degenerative changes secondary to vascular degeneration. We must also take into consideration the effects of chronic venous congestion.

Various references have been made in the course of this discussion to the occurrence of albuminuria in heart disease, as evidence that increase of venous pressure produced transudation of albumen. The statements and arguments employed are in favour of the view that so long as there is marked venous obstruction, albuminuria should continue.

Now, as we know, in chronic bronchitis, in chronic mitral valvular disease, &c., there is constant obstruction to the venous reflux, and as a result we have that enormous distension of the venules of the kidney, including the interlobular veins, the vasa recta, and the intertubular and glomerular capillaries which we find in such cases. We have, too, as a secondary result, the thickening of the capillary and venous walls which corresponds to that seen in the lungs in chronic pulmonary vein obstruction.

But if we compare these pathological facts with the clinical in any case we find that albuminuria is usually *not* a constant occurrence; that albumen commonly occurs in the urine paroxysmally coincidently with scantiness of the urine, and usually with marked aggravation of dropsy and cyanosis—that we very frequently find also some blood in the urine. And if we find albumen constantly present where there is heart disease, we may be led to suspect that there is other independent renal disease. If there is arterial tension in spite of mitral incompetence or stenosis, we may correctly diagnose chronic nephritis; if only many cell casts and hyaline casts it may be merely catarrh, especially of the straight tubes, the congested kidney, like the congested stomach or bronchi, being more liable to catarrh.

Now, if we exclude the cases in which the presence of albumen and blood in the urine is due to embolism, how are we to explain these phenomena? Either the venous obstruction is not constantly attended by increased pressure in the glomeruli, or such increase of pressure is not alone a sufficient cause of increased transudation either of water or of albumen.

But we know that the condition of the glomerular capillaries after death indicates that they have been subjected to considerable pressure, for they are dilated and their walls thickened, as elsewhere where venous obstruction has existed during life. And we might conclude from this that whereas increased pressure due to arterial dilatation promoted the watery flow, increased pressure due to venous obstruction retarded it, or that venous blood was less favourable for the transudation, or that the thickened capillary walls opposed an obstacle to filtration. But there are some other conditions which must be considered before we can arrive at this conclusion.

The venous obstruction is first felt in the vasa recta and the intertubular plexus. The distension of the vasa recta is so great that it appears to cause pressure upon the straight and looped tubules in the pyramids. This must tend to raise the pressure in the tubules and in the glomerular capsule, and as this more nearly approaches the pressure in the glomerular capillaries, the transudation will become less abundant. Moreover, the distended intertubular plexus will keep up pressure on the surface of the capsule and will prevent a disproportionate dilatation of the glomerulus. Apart from this, the greatly lowered arterial pressure will, as we know from physiological experiment, tend to diminish the amount of secretion.

But, owing to the shortness and directness of the afferent arteries, the pressure is not lowered to a sufficient degree entirely to arrest, though it suffices to diminish the excretion.

Notwithstanding what has been said by Dr. Newman, I think it probable that the velocity of the blood current through the glomerulus is considerable, compared with that in other capillaries. For although it is true that the efferent vessel is smaller than the afferent when the two are fully dilated, the afferent is capable of complete muscular contraction, whilst the efferent is not, but dilates to its maximum under internal pressure.

The glomerular capillaries are relatively short, and when once the circulation is established through them there is no reason why there should not be a constant circulation with very little change of pressure. Probably, as I have said, there is but little *constant* transudation through the glomerulus, this occurs when the pressure is raised by dilatation of the arteriole.

On the other hand, the circulation through the intertubular plexus is apparently slow, the blood being under a low pressure. This appears to be a condition favourable to the elaboration and excretion of waste products, and is seen also in the liver. In the amphibia, as we know, the urinary salts are excreted from venous blood. The stagnant circulation would not, therefore, seem to be unfavourable to the excretion of waste products, although they may be defectively oxidised.

A sudden increase of pressure may cause transudation of albumen, and usually in chronic venous obstruction this is so great that some of the capillaries rupture and blood also passes into the tubules. How is this brought about? Probably in one of two ways. It is frequently coincident with increased embarrassment of circulation. But this is usually dependent on or associated with cyanosis. Now, in carbonic acid poisoning the arterioles of the body generally are in a state of spasm, hence the high arterial tension sometimes seen in grave bronchitis. But it would appear that the renal arterioles do not react in the same way or not to the same extent. The effect of such general increase of arterial tension will be proportionately to raise the pressure in the renal arteries, and thus cause a twofold pressure in the glomerulus, backward and forward.

Or, the same result may be brought about where there is ascites. The additional pressure on the inferior cava, or on one or both renal veins, may cause sudden increase of pressure in the glomeruli. I have not gone into the question of degenerated structure. That this is not *essential* seems to be shown by occurrence of albuminuria as a result of partial asphyxia—*e.g.*, after fits, immersion, &c.; and in these cases we may also find hyaline casts in the urine; but it is of course possible that it may be an accessory, especially where the albuminuria is constant.

We may, then, in spite of the intermittent character of the albuminuria in chronic venous obstruction, regard it as a case of its production by increased pressure in the glomeruli. It is, indeed, possible that some direct passage of blood may take place from the engorged vasa recta into the tubules.

The cessation of the albuminuria and the promotion of diuresis may, as we know clinically, be brought about by diminishing the venous pressure and the cyanosis, or by increasing the arterial pressure. And the pathological explanation is found in the facts which I have mentioned.

I must now pass to those forms of renal disease, of which albuminuria forms a common symptom, and I shall especially refer to the various forms of nephritis, acute and chronic. Waxy disease and its various complications I must omit from consideration, owing to want of time.

Now a distinction has been drawn and sharply maintained between what is called catarrhal or tubular inflammation and interstitial inflammation of the kidney. I have long maintained that, although catarrh plays an important part in various forms of renal disease, this absolute distinction is one which cannot be supported by pathological or clinical evidence.

Let us put the problem to anyone who has studied the pathological changes in inflammation of other organs, and who is acquainted with the structure of the kidney, but not with its pathological changes, as to what condition will be found if the kidney is subjected to inflammation.

Let us take first the vascular phenomena of inflammation; and the answer will be—the effect of inflammation in the kidney, however produced, will be as in other organs, primarily a vascular change. There will be a stage of active congestion, followed by the phenomena of slowing or stasis, accompanied both during congestion and stasis, by an increased transudation of lymph and diapedesis of leucocytes. The points at which these changes will be most marked will be around the small venules, and to a less degree the smaller arteries.

Apply this to the kidney; the points at which this transudation would occur in its greatest degree will be around the efferent vessels of the glomeruli, which are the first venules, and around the smaller arteries. A similar effect will be produced along the vasa recta, and we shall also find the lymph-spaces distended with more highly albuminous fluid, and exudation of leucocytes in the tissues around. The effect of this upon the other structures, if the inflammation is not intense or prolonged, will be at first impaired nutrition of the glandular cells, and very probably some active proliferation.

Now this is precisely what actually occurs under a large number of conditions; in the slighter forms of acute so-called renal catarrh, in the forms produced by poisons of various kinds, and in the more severe forms associated with the poison of scarlet and other fevers. We find in these cases that surrounding the vessels at their passage through Bowman's capsule there is a great increase of cells, mostly leucocytes, and distension of the lymph spaces. If the irritation is sufficiently intense or prolonged inflammatory change may extend widely along the inter-tubular plexus.

Now let us consider for a moment what will be the effect upon so delicate a structure as the glomerulus. The exit from its vessels is impeded by the pressure around the efferent vessel, which is far more affected by such pressure than the muscular afferent arteriole, and there will of necessity occur mechanical turgescence of the glomerular capillaries, and a condition which may of itself suffice to cause the transudation of blood serum. If very intense, as in some cases of poisoning —I might instance a well marked case of corrosive sublimate poisoning, and other cases which have come under my observation—not only serum-albumen will transude, but a large quantity of fibrinous substance, and frequently also blood. The condition of the glomerulus may be likened in its mechanical causes to the choked disc, produced by distension of the sheath of the optic nerve.

I have taken a simple illustration of the effects of acute inflammation upon the individual glomerulus; but I may presently show that precisely similar conditions are present in a number of less acute inflammatory processes in the kidney. To keep for the moment to the glomerulus. If the irritant be sufficiently intense, or the inflammation be sufficiently prolonged, there will ensue, as in other organs, proliferative changes, whether the proliferation is of leucocytes or of connective tissue corpuscles—a much debated question—we need not for the moment consider. That there occurs around the afferent and efferent vessels a growth of connective tissue, at first cellular, and later becoming fibrous, which extends around the Malpighian capsule, and for a certain distance into the intertubular plexus. The vascular outlet being thus obstructed, a secondary reaction occurs in the capillaries of the tuft by which they proliferate and become occluded. The arteriole becomes closed by a thrombus, and endothelial proliferation rapidly obliterates it. A secondary irritation of the epithelium lining the capsule and covering the tuft causes adhesion of the two opposed surfaces, and by gradual steps the Malpighian body is transformed into a fibrous nodule continuous with the surrounding connective tissue.

I have assumed that the inflammatory changes are limited to the region of the afferent and efferent vessels, but this is not strictly speaking the case, for the inflammation affects also the Malpighian body—in intense acute inflammation at an early stage, in chronic inflammation at a later period—and we shall see in consequence proliferative changes which lead to gradual obliteration of the glomerulus, which are indicated partly by a multiplication of the cells in the substance of the tuft, and more especially by proliferation of, and organisation of connective tissue from the capsular epithelium.

Now, in a somewhat modified form this description might be applied to all the cases of acute and sub-acute inflammatory nephritis, and to the chronic changes, partly degenerative, partly of the nature of proliferative degenerations, which occur in the various forms of the cirrhotic kidney, although there are also other important changes.

In the same way, and at the same time as in the glomeruli, acute inflammatory exudation and diapedesis take place around the vasa recta, the lymph spaces become distended with a fluid more highly charged with proteids, and leucocytes in variable number transude from the walls. Around the larger vascular branches also, including the interlobular vessels, there occurs similar exudation, and where the inflammation is sufficiently intense, or is chronic, proliferative interstitial changes occur. Before I consider how these specially vascular changes affect the presence of albumen, let me say a word as to the condition of the tubules. Apart from any primary change in the gland epithelium, such as may be induced by various irritants brought into contact with the epithelium, either through the blood vessels or the urinary secretion, as in some forms of poisoning, the nutrition of the epithelium must of necessity suffer from the changes which take place in its vascular supply.

The obstruction to the intertubular circulation—the derangement of the intertubular circulation produced by glomerular inflammation—damages temporarily or permanently its nutrition. But it is a curious fact, which may be especially observed in post-scarlatinal nephritis, that very considerable derangement is not necessarily attended by any marked catarrhal or destructive change; cloudy swelling and fatty degeneration are frequent, but they may not reach any high degree. If, however, the derangement becomes more chronic, the nutrition of this epithelium, especially of those parts in most immediate contiguity with the damaged glomeruli, suffers seriously, and the epithelium undergoes degenerative changes, especially fatty degeneration, atrophies, and is to a considerable extent absorbed. If the inflammation is intense, or if the irritant exciting the inflammation, as in the case of some poisons such as those in malignant jaundice, and some metallic poisonings, directly damages the gland epithelium, acute necrotic processes or intense catarrh may be produced. On the other hand, in those tubules which are of the nature of gland ducts we find early and intense catarrh, especially in the straight tubes in the immediate vicinity of the vasa recta, and also in the looped tubes in the same position, the channel of the tubules in many cases being completely obstructed by a mass of cells which closely resemble pus corpuscles.

This change is found very early in all acute inflammations of the kidney, however excited, and is apparently the cause of the so-called epithelial casts, composed of masses of small cells, which are so abundantly found in the urine in acute nephritis.

Whether these cells are derived, as appears possible, from an exudation of leucocytes directly from the blood vessels into the tubules, or from proliferation of the epithelium, is a point I have found extremely difficult to determine. In some of the more intense inflammations it has appeared to me that they most closely resemble degenerated leucocytes, in other words, pus corpuscles.

I had under my care a short time ago, a patient who passed urine containing a large deposit of pus. This pus-like layer had microscopically all the characters of ordinary pus, with the exception that here and there the pus cells were arranged in short columnar masses, but not with sufficient regularity to enable one to call them casts.

This patient died, and at the post mortem the kidneys were found to be enlarged and mottled ; microscopically, they showed the characters of a somewhat acute so-called catarrhal nephritis, and all the straight tubes, and many of the looped tubes, were filled with these pus-like cells.

If, however, we must accept the catarrhal view of the nature of nephritis, the presence of marked interstitial inflammation, associated with these catarrhal changes, is precisely analogous to what we see in chronic catarrhs of mucous membranes, and it is unnecessary to attribute to the epithelium—especially so highly organised an epithelium as that of the convoluted tubules —any special proneness to catarrh.

Let us now consider the immediate cause of albuminuria in the acute forms of Bright's disease. When we consider the variety and the nature of the lesions which I have described, we see that we have various grave lesions, any of which might readily produce albuminuria. Transudation of blood-serum from the glomerulus may at first be the result of increased pressure; later, of the outflow of inflammatory lymph. The epithelium covering the glomerulus may not only be abnormally stretched, but its cement substance may be loosened, and its cells undergo inflammatory changes, so that until repair occurs, or until, by adhesion of the apposed surfaces of tuft and capsule the transudation is impeded, albumen must almost of necessity escape into the tubules. In the same way transudation of albumen, and even of leucocytes, may occur directly from the vasa recta, or from the exudation from the vasa recta, through the thin walls of the tubules, especially if these are damaged by catarrh. Possibly, also, although I believe to a far less extent, a similar transudation may occur from the intertubular plexus into the convoluted tubes; but were this the case we should probably find more intense changes in this epithelium than usually are present, and it appears more reasonable to suggest a transudation into the straight tubes, or descending looped tubes.

There can, therefore, be no difficulty in accounting for the presence of albumen in the urine, even in the slighter forms of acute Bright's disease, and its sequelæ; the difficulty is to select its source. In connection with this I may advert to a point suggested by Dr. Newman in relation to a case of acute parenchymatous nephritis. His theories of the re-absorption of water and the non-absorption of albumen in this condition were grounded upon a case in which the patient died during the acute stage of the disease. But why did he not go further, and take a case at a later period, when the urine continuing scanty and highly albuminous, the anatomical conditions are so entirely altered that his explanations could no longer serve to account for the state of the urine?

Let me give some account of these conditions which are found in the form of renal disease following an acute inflammatory attack. This form is one of the most common and the most difficult to treat, and hence it is of especial importance to determine its exact nature. It is frequently assumed that it is a purely catarrhal disease, and that it differs entirely in its pathology from chronic interstitial nephritis. This I hold to be an error due to incomplete investigation, and whilst there are certain distinctions between cases which have an acute onset, and those which are chronic in their entire course, it is not possible to draw an absolute line between them.

The pathological process is essentially the same, whether the disease have its origin in an acute attack, scarlatinal or other, or is associated with pregnancy, or due to any other definite cause, or if it commences insidiously with recurrent slight attacks.

Let me return to the point at which I left the subject of acute inflammation. I have said that in intense inflammation of the kidney there frequently occurs very extensive diapedesis and interstitial exudation of lymph, just as in other acute inflammations, so that we find that these changes exist to a variable degree—that they may be limited to the region of those vessels around which the inflammation begins, or may extend widely along the other vessels. In rare cases the capillaries are separated from the tubules by a quantity of exuded lymph; this is especially in very acute inflammation.

What are the further changes which take place after this acute inflammatory change? The inflammation may undergo cure; the epithelium may, it is true, be partly detached in the tubules, but if the inflammation has not been very intense it may entirely recover and return to its normal condition, or what has been detached may pass out as casts, or be partly absorbed by the lymphatics. When this cure takes place, and we examine the condition after the cure has become complete, we usually find that there are certain patches in the kidney in which there has been this inflammatory exudation, and in which there has been formed in place of it a certain quantity of fibrous tissue, the tubules having undergone atrophy.

But together with this we always find extensive changes in the Malpighian bodies. By the changes which I have described, the glomeruli are either entirely obliterated or the capillary tuft becomes partially or wholly adherent to the capsule, and a consequent fibrous growth and atrophy occur. It is probably this change which causes such serious permanent damage to the kidney, where inflammation is intense or prolonged. If limited to only a certain number of glomeruli, or to certain regions of its substance, the corresponding tubule may atrophy, but the remainder of the kidney suffices to carry on the function.

But in many cases the inflammation does not altogether subside; it becomes chronic, and is readily re-excited. Exposure to cold, constipation, and even indiscretions in diet may serve to renew it. We need not stop to inquire now how these causes act. Probably it is both by increasing the congestion, and by giving the kidney more work to do. In these cases, where death may occur at very various periods after the attack, it is very exceptional to find merely the fatty degeneration of desquamated epithelium, which was formerly described as characteristic. Out of a very large number of specimens of diseased kidneys, I have only two which could be said to show this condition as the most prominent. And one of these was a case of very severe nephritis in a child, almost certainly post-scarlatinal, fatal in about six weeks; the other, a case of a patient with pneumonia, in which there had been no marked renal symptoms until two days before death.

As a rule, we find that if the inflammation becomes chronic it leads to the condition which I have described as sub-acute interstitial nephritis. The naked eye appearances of the kidney vary according to the stage and extent of the disease, the amount of fatty degeneration, and the degree of congestion. It differs from the granular contracted kidney in its size, the smoothness of the surface, uniform thickening of the cortex, and absence of cysts. In some marked cases the kidney has been described by competent pathologists as pale, but otherwise perfectly healthy.

Microscopically, under a low power, the most marked changes are seen in the cortex. The glomeruli are fairly normal in position and arrangement, but appear more homogeneous than natural, and are surrounded by a close texture in place of the open network of the tubules. In the region of the medullary rays we find the tubules apparently dilated. Thus there are somewhat pyramidal bands passing inwards from the surface, corresponding with the region of the glomeruli, arteries, and convoluted tubules, in marked contrast with the region of the medullary rays.

If we study a little more minutely the condition of the Malpighian bodies we find that nearly all of them show a laminated thickening of Bowman's capsule, this laminated thickening being continuous in the interior with the layers of flattened cells which lie upon it. Or the capsule may be simply thickened and laminated, not showing any distinction from the tissues around, and continuous with the capillary walls, and adherent to the tuft. A certain number of the Malpighian bodies have undergone still further processes of change; they have become transformed into concentric fibrous knots in which we can see no capillary structure, no distinction between the wall and the capillary tuft, the capillaries almost entirely atrophied. This thickening of the capsule is continuous outside with an enormous overgrowth of connective tissue which lies between the tubules. The tubules are separated, and their epithelium is degenerated, or fatty, or has become flattened, and has undergone such changes that we can no longer distinguish between the various parts of the tubules, and we cannot say which has been collecting and which convoluted tube—owing to the extensive changes in the epithelium. In addition to these glomerular and interstitial changes there are very marked changes in the vessels, including both the large trunks and the interlobular arteries. They have undergone a very marked degree of thickening, partly of the intima, which has undergone great swelling, so that it may nearly close up the vessel. The middle coat becomes apparently thickened but probably really atrophies—undergoing a sort of fibrous thickening—and the outer coat also becomes enormously thickened; so that these vessels look on section like thick fibrous rings, and some may be almost indistinguishable from an atrophied Malpighian tuft. These changes are not limited to any set of vessels, but they affect the large vessels, and those even to the smallest size.

But from the fact that some quite healthy arteries may usually be seen, it is probable that this thickening is partly due to chronic inflammation, and is such as we see elsewhere in granulation tissue.

In some cases we find similar changes around the vasa recta.

It is in cases of this nature that albuminuria persists for months or years, and usually also a varying degree of dropsy, in which also arterial tension becomes very marked, and hypertrophy of the heart occurs early and steadily progresses. It is not difficult to account for the occurrence of albuminuria in such cases. The extensive damage to the Malpighian bodies would alone suffice to explain it. But we have in addition the damage to the walls of the tubules and the deranged circulation in the kidney. The remarkable thing is that an intermission of the albuminuria sometimes occurs, and the urine becomes at the same time greatly increased in quantity.

No absolute line can be drawn between this form of renal disease and that known as renal cirrhosis or granular contracted kidney. Indeed, it is an open question whether, in a considerable number of cases, the latter has not its starting point in an acute inflammation.

But if we carefully inquire into the history and the renal changes we find that at least two forms of disease are grouped under this common name of renal cirrhosis, the one essentially of a chronic inflammatory nature, the other due to an atrophic process dependent on a primary arterial degeneration. It is true that we find these two forms intermingled in some cases, but in others they appear absolutely distinct.

In the chronic inflammatory form, the changes found on microscopic examination are in their essential nature identical with those in the sub-acute interstitial nephritis, but differ in the fact that the process usually commences in limited parts, especially in the glomeruli nearest to the surface of the cortex, though sometimes still more marked in those which lie deepest near the large vessels, and that the evolution is more chronic. We find the same glomerular changes, the same intertubular connective tissue of variable amount, the same atrophic and degenerative changes in the tubules. But the arterial change is more wide spread; the capsule is much thickened and adherent, and irregular tubule dilatation and cyst formation are present.

In this form of kidney disease then the glomerular changes are always more extensive than those in the intertubular tissue.

The clinical conditions met with vary. The urine is sometimes highly albuminous during long periods; but in most cases the albuminuria is intermittent, though frequently occurring in small quantity.

In the chronic atrophic form the primary change is a chronic peri- and endo-arterial fibrous thickening. Owing to the essential continuity of the peri-arterial fibrous tissue with Bowman's capsule, the latter frequently shows marked fibrous thickening at an early stage. This, together with the obstruction produced by the thickening of the arteries, produces gradual occlusion of the afferent arteriole, and the glomerular capillaries undergo a fibrous atrophy. This change occurs to the greatest extent at the periphery of the arterial system, hence it is most marked towards the surface of the cortex. As the glomeruli become obstructed and atrophy, consequent atrophic changes occur in the tubules, and the cortex may thus be entirely transformed into a thin shell, consisting of atrophied glomeruli and wasted tubules. Strictly speaking, this is not an interstitial nephritis at all, although some intercurrent inflammation may occur.

In this form the disease may be almost entirely unattended by discoverable albuminuria throughout, and the chief evidence of its existence is the hypertrophy of the heart, and the high arterial tension—although there are frequently other general conditions to which I need not now refer. The urine is usually of low specific gravity and in large quantity.

I must not further discuss the pathology of the secondary changes, such as increased arterial tension and rigidity, and the occurrence of cardiac hypertrophy.

Nor must I refer, as I hoped to have done, to scarlatinal nephritis, which is one of the most valuable forms for investigation. I have already exceeded the due limits of such a communication. But I have desired to draw attention to these important changes, because no discussion of the pathology of albuminuria can be exact which does not proceed upon a due recognition of the exact morbid changes which are present in the kidneys.—*Glasgow Medical Journal, April*, 1884, *p*. 276.

42.—ON ALBUMEN TESTS.

By Robert Kirk, M.D., Glasgow.

My remarks will be confined solely to the subject of albumen tests. In view of the clinical problems connected with the appearance of a trace of albumen in the urine—in view of such questions as those so ably raised by Drs. Roberts, Mahomed, and others, in this discussion, it is evident that the reliability of our tests is of the first importance. Some of the points involved turn on the detection of a small quantity of albumen, and if one finds this where another does not they cannot debate the question of its significance on common ground. I have paid considerable attention to these tests, and hope to enlist your interest in them.

The result of Dr. Roberts' very careful investigation is that we should abide by the old tests, heat and nitric acid. It is worthy of remark that the search after new tests was largely instigated by Dr. Roberts himself, so that credit would be fairly due to him for any superiority they might possess. In his well known work on Urinary and Renal Diseases he pointed out the inferiority of nitric acid, and suggested that a more delicate test than any we yet possessed was a desideratum of some importance. I was one who engaged in the search about four years ago. In the course of an examination of the reactions of albumen I took up the subject where Dr. Roberts left it in his work. In this I was assisted by an ingenious friend, the Rev. Mr. Gibson, of Partick, who hit on the method of applying picric acid on the surface of the urine. The delicacy of the test in this way I demonstrated in this hall in 1881. I afterwards found, from the last edition of Neubauer and Vogel, that shortly before it had been employed in a somewhat similar, but not identical way, by Hager. It is true that the test had been known for some years previously, but owing to a faulty method it was not superior to other tests. Since that time Dr. George Johnson has succeeded in awakening increased interest in this test, and it seems to be now somewhat extensively used. Other new tests have also been recently recommended, and the question I wish to lay before you is, whether these possess any advantages over the old.

At the outset, I readily admit that heat and acetic acid is a very delicate test, but I feel bound to say that I regard Heller's nitric acid test as hopelessly inferior. Still worse, however, is the practice of acidulating with strong nitric acid in using the heat test. This is still mentioned in some works, and it is now recommended in the latest editions of Neubauer and Vogel in preference to heat and acetic acid, on account of the difficulty arising from the mucin reaction of the latter. Now, so complex are the reactions of albumen with heat and nitric acid, varying as they do with four several proportions of acid, with certain states of the albumen, with the amount of salts and other crystalloids in the urine, that it would be far too tedious to discuss this question here, and I would only record my opinion that scarcely any amount of experience is sufficient to guard against error, and that more serious mistakes have arisen from this practice than from all other causes put together. Let us confine our attention, therefore, to Heller's test. It is easy to show that with this test we may fail to detect albumen even when present in quantities, which can scarcely be described as mere traces—quantities of clear pathological significance. I believe it will soon be discontinued. No doubt it has the merit of being very uniform in its action, and when it gives a positive result is thoroughly reliable; while we are so familiar with it that we feel as if we at once attached the proper clinical significance to the results we obtain with it. In trying the new tests most will feel at first the want of the old landmark, and will find it necessary for a time to refer to it for comparison; and justly so. It is only when it gives a negative result that we cannot rely on it, and of this I hope to convince you.

The proof is twofold. In the first place, an albuminous urine can be treated in such a way as to render nitric acid much more delicate. If you make the urine tolerably alkaline, and allow it to stand twenty-four hours, or boil it and allow it to cool, you will find that nitric acid will detect a trace of albumen which it failed to do previously. If you keep such an albuminous urine a still longer time (for several days), even although it be acid, you find a similar result. Only a few weeks ago I was testing the urine of a patient recovering from acute nephritis. In view of the present meeting I compared nitric acid with other tests in this and other cases. In this case it gave no reaction at all in twenty minutes, and only a very slight and doubtful one in half-an-hour. Other tests, however, unmistakably indicated a trace of albumen; but as the patient was taking quinine, so that picric acid could not be used in the most delicate way, and as the urine contained also more than the usual amount of mucin, it appeared desirable to test the matter more thoroughly. I added some salt and acetic acid to the urine and set it aside. In a day or two there was a considerable deposit of mucus at the bottom, but I did not test again for albumen for five or six days. Not only was there now reaction with other tests as before, but nitric acid also gave a decisive result in a single minute. I have repeatedly seen instances of this.

The second proof is the superior delicacy of other tests. In this comparison three points require attention. We must first observe carefully the effect of any new test on normal urine. We then add a few drops of an albuminous urine to the normal secretion and note when the albuminous reaction appears, leaving a wide margin between it and the effect on normal urine. It then remains to distinguish between the former and all possible reactions occurring in any urine whatever. The latter is evidently a difficult point with any test, and we cannot expect it to be at once and easily settled. Let us now take one test, as picric acid, and compare it with nitric. Here it is well to distinguish between two methods of testing: the ordinary one, in which the urine and test fluid are mixed, and that in which they form two separate layers, as in Heller's method with nitric acid. The latter Dr. Oliver has appropriately called the "contact" method, and we may speak of the other as the "diffusion" method, for the terms are exceedingly convenient. The contact method gives us a great increase of delicacy, whatever the test, and to obtain the maximum with picric acid it is necessary to run the solution with the greatest gentleness over the surface of the urine by means of a glass tube. In this way we find that picric acid detects in a minute a trace of albumen, which nitric acid altogether fails to reveal. Further, the test shows that a quantity of albumen, which formerly would certainly not have been detected by nitric acid, is scarcely such a small trace as you might suppose. I show you an illustration of this. Here is a urine containing a trace of albumen, just enough to give a very faint reaction with nitric acid in ten minutes. Here are five test tubes, showing the albuminous zone produced with five other tests—picric, chromic, and metaphosphoric acids; potassium ferrocyanide and sodium tungstate. These several tests have all been applied without admixture on the surface of the urine, and the results are the dense and distinct zones, perfectly defined above and below, which you see in these tubes, and which will remain there unbroken for hours. If you consider that the tolerably large precipitates have been formed by the mere contact of the urine and test fluids over an area of only three-fourths of an inch in diameter, you will see that the entire amount of albumen in the secretion of 24 hours, perhaps 60 or 80 ounces, must be considerable. The specimens illustrate how you ought to test when you aim at the greatest possible delicacy—namely, without admixture, so as to get the well defined zones you see, the naked eye characters of which are sufficient to distinguish them from some other reactions, as for instance that of urates with the several tests. I venture to think that you have but to see the beauty and delicacy of those tests to become enamoured of them.

With regard to the alleged reactions of picric acid with normal urine I have found it less objectionable on this score than almost any other test I know. Used as I have described, it generally gives absolutely no result with normal urine, or, indeed, with any non-albuminous urine, unless we watch for more than five minutes, when it may produce a slight result with urates and mucin; but it is quite unnecessary to continue the observation beyond one or two minutes. If there is no result in that time we may negative the presence of albumen in the most decisive way. There are one or two other points here worth mentioning. In making a saturated solution of the acid by pouring boiling water on the crystals it is well to let it stand a whole day or more to allow the excess to crystallise out, so that there may be no precipitation afterwards. I find it a good plan to add one ounce of water to nine of the saturated solution, which involves no loss of delicacy, and prevents any turbidity at the line of contact with the urine,—a turbidity sometimes due to the precipitation of free picric acid, which is necessarily less soluble in the urine than in pure water. Another point is to acidulate an alkaline urine with acetic acid before testing. It is true that if we test carefully without diffusion there is little or no danger from this cause, but it is well to guard against it. And if we test by mixing an equal volume of the saturated solution with the urine, according to one of Dr. Johnson's rules, it is essential to acidulate first if the urine be alkaline, for I have seen such urine require three or four volumes of the solution to precipitate the albumen.

But it is objected that, besides albumen, picric acid precipitates quinine, urates, mucin, peptone, and hemi-albumose. Now, we all know urates and mucin, but probably some will be disposed to ask, What is hemi-albumose? In the last edition of Neubauer and Vogel we find that this is the name now given to the body first found in the urine by Bence Jones in a case of osteomalacia, and originally called metalbumin. In Foster's *Physiology* it is stated that hemi-albumose is parapeptone, having the same reactions as acid-albumin, and that it is even precipitated by nitric acid. If so, therefore, surely when it occurs in the urine it is well to find it. To come to peptone proper; you know it is disputed whether the body which goes by this name in the urine is identical with peptone. I have examined a number of cases of peptonuria, which have fallen under my observation, and can only say that in all cases these urines contained ordinary albumen, precipitable by heat. I have never found cases of peptonuria fail to give as large a precipitate with potassium ferrocyanide as with heat, and, as you all know, peptone is not precipitated by the former. It so happens that only nine days ago I had under observation the most marked case of peptonuria I have ever met with. The urine in this case gave with heat an albuminous precipitate of half the tube, and contained, besides serum-albumen and peptone, a considerable amount of paraglobulin. When some of it was added to about twenty volumes of water the mixture became of a milky white, as you see in this bottle. The urine of this patient is now much less albuminous and does not show the same reactions well. But I can show you a specimen of the urine I got nine days ago, which has been carefully corked up, and it still shows the reaction mainly relied on as indicating the presence of peptone. This is a ruby-red colour above

Fehling's solution in the cold, used as nitric acid in Heller's test; albumen giving a violet in the same way. This urine gives the red colour almost immediately; when the quality of albumen or peptone is small the colour takes some time to appear, and in the case of peptone may be only pink. It has been stated that peptonuria is common in amyloid degeneration of the kidneys. All the cases I have seen have been serious cases of albuminuria, and there is no evidence to show that any such body as peptone, precipitable by picric acid, has ever occurred in the urine in the absence of albumen.

A precipitate of urates is extremely rare, and after a time breaks up into an irregular form easily recognised by the naked eye. Quinine and mucin, however, but especially the latter, are more serious difficulties. It is true that the precipitates with both urates and quinine disappear with heat, but if we are obliged to have recourse to this in every case we lose the delicate method of testing, and (what is worse, and a fatal objection) we cannot exclude a possible mucin reaction with the acid in this way, for this is much intensified by heat. To exclude mucin, as I hope to show, we must retain the contact method, so that to exclude quinine at the same time we must have recourse to some other test equally delicate.

We have a number of such. Here let me mention a curious principle which I found to affect albumen tests; I refer to the influence of specific gravity on them. It has generally been thought that we could not have too much of the reagent; hence the invariable use of a saturated solution. But Mr. Gibson and I, from some of our experiments, were led to doubt this. Why, for instance, should the solution of picric acid be a delicate test? It is very slightly soluble, and the saturated solution contains, after all, only a trace of the reagent. If you make a strong solution in ether, in which it is very soluble, you find that you gain nothing, while, if you combine it with a heavy solution of metaphosphoric acid, you at once impair its delicacy. We had formerly experimented with a saturated solution of the latter and found it unsatisfactory. It now occurred to us to try a weak solution of specific gravity 1003 to 1005, and we at once found it to reveal a trace of albumen when the saturated solution altogether failed; it was, indeed, scarcely inferior to picric acid. Similarly with potassium ferrocyanide. Instead of using a saturated solution of this, strongly acidulated with citric acid, it is much more delicate to add a few drops to the urine, and to apply over the surface a solution of citric acid, of sp. gr. 1005. I found this also a convenient method of using another delicate test, sodium tungstate, introduced by Dr. Oliver, whose ingenious test papers, very satisfactory for clinical work, and which I have tried, must be invaluable to those who have to carry tests about with them. I should here observe, however, that Dr. Oliver's solution is equally delicate, as it is not too heavy. I also compared with the above the potassio-mercuric iodide test, but found it produce so much reaction in normal urine that I could not rank it with the others. Let me only mention one test more,—chromic acid. A solution of this acid, of sp. gr. 1005, on the principle I have mentioned, is extremely delicate, and quite equal to picric acid under all circumstances. It has no effect on quinine, and so far as I have observed does not precipitate anything which cannot be distinguished by the naked eye from albumen. A number of very careful comparisons showed that these tests were all very nearly alike. But it was found that when the specific gravity of the urine was high they all suffered in delicacy, except picric and chromic acids. Indeed, when salt was added to a urine of specific gravity 1020, so as to raise this to 1030, some of them were perceptibly affected. Picric and chromic acid, therefore, I could not but regard as the very best of the number.

Now, with picric acid, and one or two more of these tests, we may exclude every possible non-albuminous precipitate. If we take chromic acid and potassium ferrocyanide, urates and mucin are the only bodies they precipitate in common with picric acid. Mucin, indeed, is the only difficulty, but the following will be found a satisfactory method of dealing with it. A much better precipitant of mucin than any of the albumen tests is citric acid, and in accordance with the principle already alluded to, a solution of specific gravity 1005 is an excellent one for this purpose. Hence, test with this first and observe the effect for 2 minutes. Generally it is *nil*, but sometimes it is considerable. If mucin alone be present the effect with the albumen test is always less than with citric acid; but if there be a trace of albumen, the result with the former is much more rapid and decisive. If the two are equal (and I have seen a marked and identical reaction with both), we cannot be absolutely certain whether a trace of albumen may be present or not, and if it be thought necessary to proceed so far recourse must be had to means for isolating the mucin. These tests will almost invariably give a reaction with urates and mucin after a sufficient length of time—generally 5 to 15 minutes. Potassium ferrocyanide gives a very slight reaction with mucin, and none at all with peptone.

The heat test is no doubt very delicate, for I have carefully tested it, but I cannot admit that it is equal, much less superior, especially in the urine, to the tests above mentioned. Dr. Roberts has arrived at a different conclusion, and I do not doubt his facts, but there are two ways of making the comparison. It is necessary to adhere to the contact method of testing, and the experiment shows conclusively its superiority. When you dilute an albuminous urine with a large quantity of water the specific gravity falls so low that you cannot float the test solution on the surface, and if you now test by simple diffusion you may really find both picric and chromic acids inferior. But all that is necessary is to add a little salt to the diluted urine till the specific gravity rises to 1015 or more, and the contact method again becomes available. You then find that they are unrivalled.

But is the heat test free from fallacies? This is the important question. I believe the difficulty of proper acidulation is greater than is generally supposed. No rule on this point can be applied to all cases, as the proper amount of acid to use varies with certain states of the albumen, and, in addition, with the specific gravity of the urine. The latter point is of great practical importance, and here is to be found the explanation of the fact alluded to by Dr. Roberts, that in a watery dilution of an albuminous urine the quantity of acid required to precipitate the albumen with heat must be very much reduced. The amount of acid must bear a certain proportion to the amount of salts present in the solution, any excess over this proportion being certain to keep the albumen in solution. Hence, after diluting with water the salt is so much reduced that the former quantity of acid proves an excess, but if we now add salt in sufficient proportion we may safely use as much acid as before. If, instead of diluting with water, we remove most of the crystalloids by dialysis, we find that we must diminish the acid in the same way to precipitate the albumen by heat; but if we again add the salts abstracted we may acidulate as freely as before. Hence, you must acidulate very cautiously in a urine of low specific gravity. A source of serious difficulty with the heat test is that the urine is sometimes naturally too acid. In this case we are advised to neutralise cautiously to a certain extent, but this is a tedious and uncertain proceeding, and how are we to know when it may be necessary? A much better plan is to neutralise the effect of acid by salt. Whether albumen is precipitated with heat or not depends altogether, indeed, on the relative proportions of the two factors, salt and acid; and of the two the former is the principal agent, and the latter the assistant—and a very treacherous one. The difficulties attending this method of testing are well illustrated by the contradictory and invariably imperfect rules given by authors.

But the most serious objection to heat and acetic acid is the very one which has been urged against picric acid,—the danger of being misled by a mucin reaction. And the very same might have been urged against nitric acid, had it been worth while; it frequently gives a pronounced mucin reaction, although I am not aware that the fact is anywhere noticed. With respect to acetic acid I have already mentioned that it is not recommended with heat, as formerly, in the later editions of Neubauer and Vogel, and Méhu *On the Urine* only advises it in large proportion with excess of salt, the urine being filtered after the addition of these two agents. It seems to be still generally supposed that the slightest haze with heat, as ascertained by comparison of the upper part of the tube with the lower, or of the heated tube with another sample of the same urine, equally acidulated, in another test tube, is conclusive of the presence of albumen. The idea, I am disposed to think, is erroneous, and the point demands the attention of those who rely on this test. I have seen a turbidity with heat when other tests gave only a mucin reaction, and Méhu states that urines containing a certain amount of mucin become muddy when boiled, this turbidity not disappearing with acid. It is true that mucin is precipitated in the cold by acetic acid, but it requires a considerable amount of acid, and, with a small quantity of mucin, a little time to develop its maximum effect. This is much intensified by heat, so that a small amount of acid, which may have no effect in the cold, will, with a certain amount of mucin, produce a decided opacity on heating. The same happens with picric acid, a marked opacity not produced in the cold. Indeed, cold picric acid gives little mucin reaction, and even without the correcting citric acid test would seldom mislead us; the mucin precipitate, too, has a thready, peculiar appearance. I have observed these mucin reactions in solutions prepared from ox gall, as well as in the urine. I have no doubt that those who use heat and acetic acid will frequently, especially in the urine of females, find albumen where those who use picric acid find none, but only a mucin reaction. Let me mention the last case I have seen, which was a well-marked one. It was the urine of a female, the subject of phthisis, of sp. gr. 1025, very turbid from urates. It was filtered, and some of it was placed in two test tubes held side by side. It was still slightly turbid, but on heating a little both became quite transparent. One of them was then heated to boiling, and became not merely hazy, but assumed a very decided opacity. On adding an equal volume of the saturated solution of picric acid to another sample there was a scarcely perceptible opalescence, but this became, with heat, as dense as the former. On now testing with citric, picric, and chromic acids, the result was identical with all three, so that I was convinced of the absence of albumen. The three precipitates, after standing an hour or two, assumed an irregular appearance, different from albuminous ones. Further, I now acidulated another specimen of the same urine strongly with citric acid, and instantly the tube became turbid. On heating this it did not in the least diminish at any temperature; it was therefore, not urates, and could be nothing but mucin. Heat, therefore, appears to stand in need of some correcting test, for this amongst other reasons.

If the foregoing observations are correct the detection of a trace of albumen in the urine is still a matter of some difficulty, especially in the presence of mucin. No test is so certain in urine as in simple water. Additional attention to the tests is still important, or we may discuss the significance of what, after all, is not albumen. I think no one should decide on the presence of a trace of albumen on the evidence of any single test. No harm, but benefit, can result from the use of the most delicate tests attainable. They in reality render testing more easy, as well as more certain; the negative result which we obtain in many cases at once puts an end to further search. The doubtful cases are but few, and after a little experience the mucin test will seldom be found necessary. The charge brought against picric acid that it reveals albuminous bodies hitherto unnoticed is groundless. As far as my own experience goes I never have found a trace of albumen by one test which I could not confirm by several others; even with a little trouble by the inferior test, nitric acid. But if the allegation were valid it would only make the use of such tests more imperative. However numerous the several forms of albumen, they all have certain characters in common by which we should first seek to recognise them in the urine, where all are pathological. If we can go farther in any case and prove that the albumen is of a special kind, so much the better. But the distinctions between various forms of albumen are not always well founded, especially in the urine, as could easily be shown if time permitted. Indeed, albumen as found in the urine never gives exactly the same reactions as the albumen of the blood, but the cause of many of its variations is still very imperfectly known.—*Glasgow Medical Journal, April,* 1884, *p.* 314.

43.—ON ALBUMINURIA IN THE CONTINUED FEVERS.

By Dr. George S. Middleton, Glasgow.

Frequent reference has been made to the occurrence of albuminuria in the specific fevers, and as this is a subject to which I at one time devoted some attention, I may be allowed briefly to record the results of my observations. These were made on all the cases of typhus and enteric fever admitted consecutively into the Maryhill, Hillhead, and Partick Fever Hospital during a period of about 15 months, and the examination of the urine in each case was made from the date of admission, and in most cases daily for several weeks.

The conclusions to be drawn from my observations are:

1. That albuminuria occurs in over 85 per cent of cases of typhus and enteric, and tends to be more considerable in typhus.

2. That it occurs early in both diseases, rather later in enteric than in typhus, and persists till convalescence is thoroughly established.

3. That abundance of albumen indicates a severe case, but that severe cases (even with well-marked typhoid symptoms) are not necessarily associated with a large quantity of albumen in the urine.

4. That tube-casts, hyaline, epithelial, and granular, are frequently present, and tend to be more numerous in typhus; when they are abundant the case is severe.

5. That albuminuria, so far as my experience goes, is more common in the febrile stage of typhus and enteric than in the febrile stage of scarlet fever.

In these fevers the albuminuria is associated with scanty urine, of high specific gravity. How then are the frequency of albuminuria and the scantiness of the urine to be accounted for? It is common to ascribe them simply to congestion of the kidneys, but I believe we cannot refer them entirely to physical causes, such as alterations in blood-pressure. In the continued fevers, and perhaps especially in the case of typhus, there is undoubtedly increased venous obstruction in the kidney, without increase of general arterial tension. In fact, the general arterial tension is notoriously lowered, although a very "undue quantity of excrementious material is present in the blood," a condition said by Dr. Mahomed to produce a rise of arterial pressure. Now these are the conditions admitted by physiologists to cause a diminished secretion of urine.—*Glasgow Medical Journal, May*, 1884, *p*. 331.

SURGERY.

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES OF THE BONES, JOINTS, ETC.

44.—ON THE USE OF OPIUM AS AN AID TO SURGERY.

By George Pollock, F.R.C.S., Consulting Surgeon to St. George's Hospital.

My attention was early drawn to the beneficial effects of opium, by my teacher and friend, Mr. Cutler, many years surgeon to St. George's and the Lock Hospitals, and also some time surgeon to the Second Life Guards, in all of which positions his opportunities of observation were considerable in the use of opium. These early impressions were strengthened in my mind when, as a student, I read the works of Travers "On Constitutional Irritation." Therein I found the practical teaching of the one confirmed by the writings of the other.

It is in the various conditions of gangrene that opium may be said to stand alone as useful and powerful for good. Whether the gangrene be the result of injury in old age, or whether it appear in an ulcer in advanced life, kept open by neglect, or rendered more irritable from exposure—in fact, in almost every condition approaching to gangrene, or partaking of it, save two or three to which I will hereafter refer, the administration of opium may and should be had recourse to; always with safety, frequently followed by great advantages, and not unfrequently helping to restore the patient to health and prolonged life. "If I were to restrict my pharmacopœia for gangrene to a single drug," writes Mr. Travers, "I should choose opium without hesitation, as being that alone for which I could find no substitute, and of most general efficacy in allaying the irritation, and upholding the powers of the constitution. As for any other narcotics save opium, they are not worth the mention."

I must here also quote the forcible words of Dr. J. A. Wilson, formerly Physician to St. George's Hospital, on the value of this drug: "How full of wonder," he writes, "how worthy of admiration, is the drug whose rule is sleep. Opium, when in active circulation through the body, influences all nutrition, and modifies every secretion. Its effects on particular functions are so marked and various that, observing them separately, we fail to consider them in their combination. Opium is alterative in the widest sense of the term, and should never be prescribed for the use of a part, but in remembrance of its power over the whole. The mere frequent application in medicine of the rule thus inferred from opium, would correct much that is now bringing reproach in its practice."

In the forms of gangrene above alluded to, pain is often a forerunner, and most frequently a very marked symptom, of the threatened evil. The patient will complain of great suffering, if the limb be lowered, or the foot placed on the ground. This condition appears to be due generally to some defective arterial circulation and nerve-disturbance. I have frequently examined the main arteries in such instances, and found them pervious; but with, perhaps, here and there, and generally, some evidence of atheroma. Probably, in all such cases, some arterial degeneration is usually present. In many, the pain is often, beyond any expression, in advance of, and far greater in proportion to, the local change.

The pain of diseased artery is a very marked point, and practically important; insomuch that, in continuous pain, with obscure cause of explanation, I have usually been inclined to prognosticate the arrival of some later positive evidence of diseased artery, or, in its absence, the existence of cancer. The importance of pain as a symptom cannot be too closely considered; it will usually be found, sooner or later, a prominent feature in threatening or established gangrene due to arterial defect.

It is in cases of gangrenous ulcers that we have, in opium, a sure helpmate and a certain friend. Administered internally, it arrests or modifies any tendency to ulceration or sloughing; it soothes pain; it appears to husband the power of the patient; the irritable surface or gangrenous edge, under its influence, generally and soon becomes changed to a clean healthy granulating surface, surrounded by its characteristic whitish margin of skin. The external application of opium, in some convenient form, appears occasionally to assist towards such beneficial results, but seldom or never is potent, of itself, to curb the action of ulceration.

In senile gangrene, I know nothing, as regards medical treatment, which can compare with the internal use of opium. It alone will mitigate the severe pain of this formidable malady; it alone appears capable of affording that comfort which may render life tolerable, and, perhaps, tends to prolong it until the wished-for line of demarcation appears, and the condition of the patient becomes such that local treatment may be more advantageously called into action. Under any circumstances, in senile gangrene, opium may be used freely; under the worst forms, it should be used with the view to modify suffering, and ease the few remaining hours of life, when a fatal termination may be surely prognosticated. There are, however, certain conditions of gangrene in which the use of opium internally, as far as my experience tells me, does not appear to influence in any favourable degree. There are few rules in life without an exception; and I fear, as in medicine, so in surgery, our rules must be allowed to have many exceptions.

The condition of gangrene in which the use of opium must not be depended on for good, in which indeed, if trusted in solely, it would prove worse than useless is, first, that of traumatic spreading gangrene. If I may be allowed to express myself strongly on this particular point, I would say that it would be almost culpable to trust one moment to its administration in such a case. I shall be glad to profit by the experience of those whom I have the honour to address, as to treatment in this form of gangrene. It must be allowed to be a most urgent condition; formidable in character, and one that requires early and energetic treatment, if life is to be saved. With loss of time, we lose the favourable opportunity for acting while operative interference is alone justifiable and promissory of good. Delay is always dangerous; and any trial of medical rather than of local treatment will surely terminate in disappointment, even under circumstances in which it might be anticipated that the latter would fail to save life. Again, in the well known form of gangrene attendant on diabetes, opium brings little or no help. It may soothe, it may modify discomfort, but it is not required to relieve pain; pain is usually a minus quantity in this peculiar form of gangrene. The latter is, like senile gangrene, frequently seen to commence at the extremities of the lower limbs, is moist in character, and often spreads rapidly under the integument rather than implicating it to an equal extent. In its progress, it is usually seen to extend along the planes of cellular tissue, and not to involve all soft structures alike. It is usually the forerunner of death in old and confirmed cases of diabetes.

In severe cases of carbuncle in association with diabetes, we meet with similar results. In such cases, no healthy attempt to limit slough appears capable of being established. It may be truly said, "the pitcher is broken at the fountain"; the urine gives evidence of excess of sugar. We may pretty surely write it down, that the commencement of slough or gangrene, in a diabetic patient, is usually the commencement of the end, and that the end is generally not far removed.

Gangrene, when the companion of diabetes, is the outcome of some deteriorated condition of the fluid which circulates, the original cause of which is no question of the present; but over this condition opium appears to possess no influence. The other, senile gangrene, is the result of vessels incompetent to supply sufficient fluid nourishment to certain parts, and consequently these parts die. In such cases, opium, however it may act, certainly must be considered our sheet-anchor in the storm the constitution has to encounter.

What has been said as regards the use of opium in traumatic spreading gangrene, and gangrene in diabetes, applies also to a great extent to gangrene the result of embolism.

In the various forms of phagedæna, I have seen most satisfactory results follow on the internal use of opium. I would especially urge the importance of, and benefit from, its free administration in all cases of this formidable evil. It has fallen to my lot to see much of sloughing sores—phagedæna in its every variety, in hospital and in private—as the result of syphilis or of dissipation, and attendant on accidents or operations.

The administration of opium in such cases is nothing new to advocate; it has been recommended by many besides myself. Sir Joseph Fayrer, in his Clinical and Pathological Observations in India, relates the particulars of a case of sloughing ulcer of the foot, in which the doses of opium were pushed to seven and a half grains every three hours before the sloughing process was arrested (p. 154). But I have reason to believe it is not so generally appreciated as it deserves to be, and as it would be if more generally and completely tested.

It is some years since a young woman was admitted into St. George's Hospital with a sloughing sore of the labium, engrafted on some syphilitic contamination. She was placed under the care of Mr. Cutler, who at once ordered opium to be given freely internally, while externally a chloride of sodium wash was alone used. The case yielded to this treatment most satisfactorily, and the patient soon left the hospital well.

Within a fortnight of the admission of this case, a woman in the next bed but one, the subject of ulcer over the patella, the result of abscess of the bursa, was attacked by rapid sloughing of the sore. Being under the care of Mr. Cutler, she was placed under a similar plan of treatment to the former, without the application of any escharotic. She recovered in an equally satisfactory manner.

It would be tedious to relate how many cases of active sloughing sores, phagedænic in every character, were subsequently admitted into the hospital for some months. Not only were they abundantly supplied from without, but all recent cuts or wounds admitted into the hospital had the tendency to take on similarly diseased conditions.

I had ample opportunities of watching a large number of cases. All that came under my immediate notice were simply treated with opium, in one form or another; no escharotic was used, nor did any appear necessary. Lotions of chloride of soda or lime were the usual local applications. I cannot recall a single instance in which the result was not satisfactory, with the exception of a very few cases which succumbed to pyæmia. In one case, large doses of laudanum, somewhat freely administered, produced rather alarming symptoms of narcotism for a short time, but the patient ultimately perfectly recovered.

As I have already stated, I believe that the treatment of phagedæna by opium has of late not been sufficiently considered, and I have been consequently desirous to bring the subject more prominently to the notice of the profession. I could not have desired a better opportunity to ventilate the question than through the discussion of it by the present audience. No one better than the military surgeon is able to test its value, or judge of its beneficial effects when adopted. He is able to weigh its worth under many climatic conditions denied to the private practitioner; and from critical observations of cases placed entirely under his supervision and control, is able to note the results with an accuracy not often readily or successfully achieved by those not thus publicly employed.

In all cases of syphilitic phagedæna, in hospital and in private practice, I have alone trusted to the internal use of opium, and have never been disappointed. It has proved as certain in arresting phagedæna of the penis or labium, of syphilitic origin, as surely as it has been found to arrest a sloughing sore elsewhere, following a cut or any other local injury.

Of course, in all such cases, external applications, to ensure disinfection and to destroy smell, are not to be neglected. I know nothing better than a solution of sulphurous or chromic acid, to be followed by iodoform as soon as sloughs have separated. Chromic acid, (1 in 2,000 to 4,000 of water) has the advantage of being a very cheap and most efficacious deodoriser; while, as a disinfectant, nothing, I believe, can surpass it. It destroys all smell of disagreeable or offensive discharges at once on application; and, as it must be used largely diluted, it becomes one of the cheapest disinfectants and deodorisers at present obtainable. I am indebted to my friend, Mr. Peter Squire, for my knowledge of the value of chromic acid as a disinfectant.

In private practice, it is always a matter of some importance to avoid such painful applications as pure nitric acid, however useful it may prove as a remedy, provided an equivalent can be gained by a more soothing plan of treatment. I would not wish to imply by this statement that we may employ that in hospital practice which we would avoid in private. But there are many facilities for recourse to measures of a severe character without giving pain, in hospital, which are not as readily accessible in private, and especially in country practice.

I have now to draw attention to the consideration of the use of opium in a class of cases in which, as far as my experience carries me, it has not been much adopted or advocated. All who have attended to the poor will have met with sad specimens of ulceration and sloughing of the mouth, in children of the lower and destitute classes.

In my younger days, I was taught to treat such with the internal use of chlorate of potash, bark, etc., introduced, as best they could be, in some form of fluid nourishment. Local stimulating or caustic applications were in free use. The results were most unsatisfactory—not unfrequently fatal; and, even in recovery, the ravages of slough and subsequent contractions told the tale of havoc and the helplessness of our measures.

A few years since, two instances of this character of ulceration of the mouth came under my care in St. George's Hospital. In one case, a child about eight years of age was admitted with extensive ulceration of the inner side of the cheeks, lips, and gums. The parts were so tender that it was with difficulty that the child could be induced to open her mouth. The breath was offensive, the saliva abundant, the cheeks and lips swollen. The surface of all the ulcerated spots was in a slightly sloughy condition, though superficial in extent. The inner surfaces of the mouth were generally tumid, and excessively tender on movement. The child could with difficulty, on account of the tenderness, partake of food, even in a liquid form; all solids were entirely refused, they could not possibly be masticated.

Having formerly, in similar cases, observed the futile results of tonics, local astringents, etc., I decided to try the effects of opium. If opium was potent for good in the treatment of sloughing of external parts, it occurred to me that some benefit should be derived by its administration in this instance. The child was ordered to take three drops of laudanum in a teaspoonful of water every four hours, until observed to be drowsy—the dose only to be omitted while drowsiness lasted. The benefit of this treatment was very marked in a few days. Pain had been so reduced, that the child was soon able to take plenty of nourishment. However, some days after the improvement had been fully marked, a slight relapse took place, and the sores were observed to be in a less healthy condition. On enquiry, it was ascertained that the nurse had, by some mistake, omitted the medicine. It was immediately ordered to be resumed, and was continued until the child was well, all ulceration of the mouth being healed.

It will be noted that the only constitutional treatment in this case was the administration of laudanum in water, continued until the last trace of ulcer had disappeared. When the child entered the hospital, it would scarcely partake of sufficient food to support life long; it had great difficulty in deglutition. The local treatment was simply a wash of warm water and Condy's solution of permanganate of potash, to modify the offensiveness of the mouth-secretions. Under the treatment pursued, it was most satisfactory to observe how soon these simple means subdued pain, rendered the child able to feed well, and how rapidly the ulcerated surfaces assumed a healthy healing condition. The accidental omission of the laudanum for a few days was an additional testimony in its favour; for a marked relapse set in, but was at once arrested by its resumption.

The early arrest of pain in such a case as I have described is, in my opinion, one of the very great advantages gained by this form of treatment. While suffering from the pain, the child is almost starved; relieved of it, food is soon enjoyed by the little patient, and nourishment is well marked in its improved looks. Pain, added to want of sufficient nourishment, rapidly deteriorates and destroys life in the young; and it is the mitigation of the former which materially contributes towards an efficient supply of food, and renders this form of treatment so happy in its results.

Soon after the admission of the case just related, a second opportunity presented itself for the trial of this treatment, under almost identical conditions. The case was again that of a little girl under my care in St. George's Hospital. The condition of the mouth was very similar to that of the first case, equally ulcerated and equally painful, with as much difficulty in partaking of food, and extreme pain in all movements of the mouth. Similar treatment with laudanum in water was adopted, and no other drug was administered. The improvement was marked, steady, and satisfactory, and the child left the hospital well. I may mention that in neither case did contraction of the mucous surfaces follow on recovery, to an appreciable extent.

In 1882, I was consulted by a gentleman with a peculiar state of mouth, such as, in an adult, I had never previously met with. On the inner side of each cheek were patches of ulceration with superficial sloughy surfaces. The anterior half of the upper surface of the tongue was in a somewhat similar condition, though more superficial in extent. On the under surface of the tongue, on each side, there were somewhat deeper ulcerated patches, some deeper than others. Many teeth were defective; at their base the gums were more or less ulcerated. There was much salivation, fœtid breath, much pain in and difficulty of articulation. Nothing but fluid food could be taken, nor had his diet for some time past consisted of aught else, so great was the pain on the introduction of solids into the mouth. "This condition," to use the words of the patient, "commenced as far back as the previous Christmas (1881), with thick white spots on the tongue, which gradually spread down towards the point." Ulceration slowly but steadily followed, until it assumed the condition above described.

Constitutional treatment with iodide of potassium and various local applications, terminating with that of pure nitric acid, had been tried without benefit when he called to consult me. The appearance of the mouth did not, to my mind, in any degree point to syphilitic complication; nor were there any indications elsewhere to make me doubt the statement of the patient, that he was entirely ignorant of any venereal taint.

The disease was in no respect associated with epithelioma. It appeared to be simply a thoroughly bad intractable specimen of ulceration of the tongue, gum, and cheeks, due to some obscure constitutional defect, and such as I had hertofore observed only in children of the ill-fed and poorer classes.

As the patient had previously been seen by Sir James Paget, I proposed a consultation with him about the case as a somewhat singular one, and to this consent was readily given. We both were agreed as to the non-syphilitic character of the complaint, to whatever else it might be due. One only possible explanation as to its cause was, the well-water at the patient's country residence had been found to be much contaminated by sewage. It was, however, difficult to attribute anything to this circumstance, as the water had long ceased to be used for domestic purposes. Under the circumstances mentioned, I suggested the simple use of opium internally, with Condy's solution and water as a mouth-wash to mitigate the smell from the offensive saliva and discharge from the sores.

He commenced to take twenty drops of laudanum three times a day in water. With regard to diet, he was to take as much milk, raw eggs, etc., as he could comfortably digest. This treatment was commenced on May 13th, when the patient weighed ten stone thirteen pounds. Quinine was added to the opium a fortnight later, as he complained of weakness; but pain had much subsided, and he had greatly improved by being able to take more solid food. Gradually some of the defective teeth were attacked or removed by my friend Mr Vasey; and, as each disappeared, so the ulcerated gum at its base assumed a healthy surface, and slowly healed without any local application.

In six weeks he had greatly improved; his weight had increased to eleven stone three and a half pounds. The laudanum was now reduced to forty minims in the twenty-four hours, and, on July 5th, to thirty minims. The decrease was in accordance with the improvement. The local wash was occasionally changed, but there was no evident advantage gained by the application; one of weak nitric acid and bichloride of mercury appeared to afford most local comfort.

To curtail a long story, I may say that the opium treatment was continued till late in the autumn, when the patient was so greatly improved, that it was no longer considered requisite.

There have been occasional but slight relapses, and still some defective teeth would be better removed. But the patient has long since resumed his professional work; has no difficulty in masticating solid food, as far as the remaining defective, and a large deficiency of, teeth will allow him; and is in every respect in excellent health.

The steady marked improvement in this singular case, under the simple administration of opium, would help to justify the opinion stated, that the ulceration was not of a syphilitic origin, and that the result of the administration of the opium also justifies the statement that the treatment was appropriate and satisfactory.

I look back on this case as a typical one—one of great importance, as illustrative of benefit and comfort from the soothing, rather than an heroic, plan of treatment. The application of the nitric acid to the ulcerated surfaces within the mouth, to which the patient had submitted prior to his visit to me, was described by him as something horrible in suffering; yet, he added, had it been considered desirable to persevere in its use, he would endeavour to submit to it, to rid himself of the painful disease from which he had so long suffered.

I give the particulars of this case for what they are worth; as far as my experience tells me, and I may add that of Sir James Paget also, such cases do not often occur in adult life; they are by no means rare in childhood. But, whether seen in adult or in early life, the treatment by opium has so far proved successful, whereas, under similar circumstances, other measures have been known to fail. Under such conditions, the facts related appeared to me worthy the attention of those whom I have the honour to address.

The advantages of the internal use of opium in obstruction of the bowels is too well known and too highly appreciated to justify me in occupying time in dwelling long upon its beneficial effects. So, too, as regards its use in cases of hernia after operation, in inflammation of bowels from external violence, and in other injuries of the viscera. In my student days, the usual treatment, after an operation for hernia, commenced with small doses of Epsom salts frequently repeated. I have many notes of such cases; nor even at this period is it uncommon to be consulted about cases of obstruction, in which purgatives have been administered not wisely or too well, and when opiates would most probably have done more good.

Opium administered after an operation for hernia may be continued, and usually with advantage, until the bowels are naturally relieved, or by the aid of enemata. My rule has long been never to allow an aperient of any kind until a free passage has been independently established. So, also, in constipation due to the well-known block in the cæcal region, whatever the cause may be which gives rise to it. If a rule, hard and fast, and without an exception, might be laid down in treatment, it would, I think, apply forcibly to these cases—that aperients be withheld, and opium administered, until natural evacuations have been established.

Of the use of opium in cancer, I need say little but in its praise. Under many such conditions, patients may be said to live on opium; some even fatten on it. It not only gives relief to pain, but renders life tolerable, under circumstances in which it would otherwise be one continuous term of suffering or agony till relieved by death. It need only be limited in dose by its effect; it is the only drug we can depend on to lessen the severity of a surely advancing disease, and need not be stinted by any rule which would apply to the treatment of disease not of a fatal or malignant character.—*British Medical Journal, April* 26, 1884, *p.* 799.

45.—ON THE NATURE OF RIFLE-BULLET WOUNDS, AND THE PRINCIPLES OF THEIR EARLY TREATMENT.

By Gilbert Kirker, M.D., Surgeon, R.N.

While attending to the Turkish wounded in the services of Lord Blantyre and the Stafford House Committee, I was struck by the facility with which some severe bullet-wounds—notably one of the thigh, with fracture of the bone—were healed. This directed my attention to the nature of rifle-bullet wounds, on which subject I made some observations in Turkey, and a number of experiments after returning home.

In the present paper I propose to point out what principles of early treatment can be founded on a knowledge of the nature of these wounds.

It will assist in a more thorough understanding of the first subject, to look at the attributes of the projectile by which the wounds are produced; and, as the most typical rifle-bullet, I shall take the cylindro-conoidal.

The transverse or wounding area of this bullet is relatively small, its impinging end is somewhat pointed, and, when in motion, it rotates screw-like. These attributes enable it to travel with a minimum expenditure of force, and, consequently, it retains for a long time a high velocity.

If we were to consider what would be the effects of such a projectile traversing an animal organism, we should expect that its track, in direct proportion to the small amount of obstruction which can be offered by the tissues, would show little evidence of destructive action. This conclusion, I submit, is in harmony with what generally takes place; but, remembering the instances in which there is great destruction of tissue in rifle-bullet wounds, it may seem to disagree with experience. These latter instances, however, I believe, are exceptional, and due to some uncommon accident affecting their production, by which the great force which the projectile has conserved to the distance at which wounds are generally inflicted is brought into action and transformed into tissue-destruction, and also sometimes to improper early treatment. That the possession of great momentum which is not brought into play by a projectile in the production of a wound augments the destruction of tissue seems to me impossible.

As a rule, a rifle-bullet carries none of the soldier's clothes or accoutrements before it into the wound.

The entrance and exit openings of rifle-bullet wounds are small, and represent only the rupture of the skin. To this rule, there are exceptions in the case of entrance-openings, where the bullet has impinged on skin lying immediately over a bone; and, in the case of exit-openings, when the bullet has been altered in shape, or has carried pieces of bone with it. It is always possible, I believe, immediately after the production of the injury, to distinguish between the entrance and exit openings. The former is small, round, and its edges, which may be blackened, are inverted; while the latter is more irregular in shape, its edges are everted, and some of the subcutaneous tissue protrudes from its centre. Changes, however, soon take place, which make it impossible to distinguish one from the other, and I have generally observed the wound of exit to heal before the wound of entrance.

In the subcutaneous soft parts, the character of a rifle-bullet track seems to depend very much on the arrangement of the constituent tissue-fibres; in aponeuroses, or in the subcutaneous cellular tissue, the fibres are reticulated, the track is round, and has a tendency to remain open; but where, as in muscle, the tissue-fibres have a certain parallelism, the bullet seems to slip between, and leave a slit-like track, whose sides tend to come together. In most cases, therefore, I believe that, other things being equal, an injury of bone in a rifle-bullet wound will heal better where there is a good covering of muscle, than where it lies immediately below the skin and subcutaneous cellular tissue.

The injuries to bones which rifle-bullets produce, owing to the nature of the bone struck, and the manner in which the bullet strikes, are, of course, extremely various, but they have all certain common characteristics. In them, there is little comminution of the bone, but extensive fissuring; for, fractures being produced by the bullets clearing for themselves a passage through the bone, the more they do so by splitting, the less breaking down they have to do.

I have been able, I believe, to actually demonstrate what is here stated. While experimenting, some time ago, with reference to the relative amounts of splintering at the entrance and exit apertures of penetrating fractures of the skull, I noticed that, when the force was applied to the inner surface of the bone, fissures were more apt to be produced than when it was applied to the opposite side. Subsequently, I made this accidental result the subject of examination. I fired a small rifle-bullet through a number of calvaria, aiming sometimes at the inner side, and sometimes at the outer. These experiments not only showed that fissures were oftener produced under the former circumstances than the latter—being the rule in the one, in the other the exception; but again, by accident, I observed that the hole with fissures, which the bullet made in passing from the inside, was less in size than the hole without the fissures, which it made in passing in the opposite direction.

Owing to rifle-bullets fracturing bones in this manner, the fragments produced are not deprived of their connections with soft tissue. They retain their own attachments to periosteum and muscle, and, immediately after the injuiry, they are all connected to each other and the parent bone by the periosteum stretching across the fissures. I look upon the knowledge of this fact as one of the most important acquisitions which military surgery has lately gained; for I expect, when surgeons are able to give to gunshot fractures a fitting treatment in the light of this knowledge, the most dangerous of the not immediately fatal wounds of warfare will lose much of their gravity.

When a rifle-bullet strikes cancellous bone, such as the upper or lower end of the femur, the fragile structure yields and breaks before it, is partly carried forward, and partly crushed against the walls of the track. A moiety of what is crushed laterally is destroyed, while the remainder is saved by the elasticity of the tissue. The latter portion returns to its place, and a tunnel is left, less in diameter than the bullet which formed it. There is no fissuring, but the exit opening has a bevelled margin.

Now, with regard to the early treatment of rifle bullet wounds, the principles which should be followed are already being recognised in military surgery, and in reference to them I make no pretension of originality. I believe, however, that it will further their acceptance to show how the practice which is being found most successful is in harmony with a knowledge of the nature of the wounds.

There should be no opening up or examination with finger or probe of these wounds. Many superficial flesh-wounds and compound fractures, where the bone is near the surface, are open after being produced; but, as a rule, where the bullet traverses muscle, with or without fracture of bone, its track closes after it, and the injury becomes practically subcutaneous.

When in wounds of the extremities there is injury of bone, the fracture should be fixed at the earliest opportunity. In such injuries, I believe, the importance of this principle cannot be overstated; and it would be well if not only the medical officers who treat, but the sailors and soldiers who suffer, were impressed with the same belief. The latter should be instructed, on having a leg or arm broken by a bullet, to keep it if possible completely at rest until they come under medical care. Remember what I have shown to be the character of rifle-bullet fractures. They are extensively fissured, but slightly comminuted. The fragments are held together by periosteum, a far from strong membrane, which probably at every movement, even the most gentle, is partly rent. With want of attention or recognition of this principle, it is easily seen how these fractures, through rough or careless handling, become most serious injuries, and so have acquired the bad character which they possess.

These two principles I consider by far the most important in the treatment of rifle-bullet wounds, which are the immense majority of those received in modern warfare; but the kind of dressing that is first applied is not a matter of indifference, or the system of treatment which is subsequently adopted. At the present time, it is the general opinion of military surgeons that the Listerian antiseptic system cannot, in its entirety, be carried out at the front. I am one of those who are not deeply dejected at the fact, and who do not see that the advancement of the early treatment of gunshot-wounds is inseparably bound up with the successful working of Listerism in the field. In my opinion, all that is required of a first dressing is that it shall support and protect without irritating; and the dry absorbent pads, now gaining great favour in surgical practice, when properly applied, seem to satisfy these conditions. I should rather labour to perfect a means of quickly and effectually immobilising gunshot fractures, than one of carrying carbolic acid spray at the butts of the rifles.

Great success, which has been attributed to antiseptic treatment, followed the practice of certain surgeons, most notably Dr. C. Rëyher, when attending to the Russian wounded in the late Russo-Turkish war. That much praise is due to these gentlemen for the splendid work which they did, no one will for a moment deny. They have extended our view of the range of the possibilities of military surgery; but that their exceptional results depended altogether on a more thorough application of the antiseptic system, is questionable.

Surgeon-Major Gribbon said there could be no doubt that the necessity for having the very simplest form of first dressing on the field, was unquestionable. In Afghanistan he used lint, soaked in tr. benzoin co. with the best effect. He agreed with Dr. Kirker that the speedy immobilising of gunshot-fractures was the first condition of their successful treatment.—*British Medical Journal*, *Sept.* 6, 1884, *p.* 462.

46.—OSTEOTOMY OF THE HIP.

By C. B. Keetley, F.R.C.S., Surgeon to the West London Hospital, and to the Surgical Aid Socity.

My paper deals with ten osteotomies of the hip, performed on nine patients.

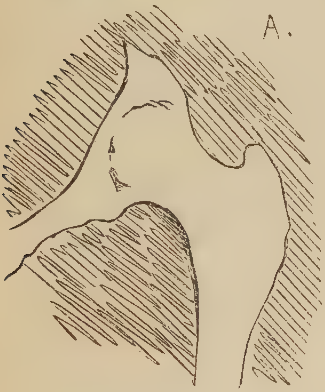
No.	Date.	Name.	Age.	Above or Below the Trochanters.
1	February 1st, 1881	Alice B.	25	above.
2	April 10th, 1881	William M.	14	above.
3	October, 1881	Alice B.	15	above.
4	February 28th, 1882	Joseph S.	15	below.
5	April 4th, 1882	Elizabeth A.	24	above.
6	June 6th, 1882	Alfred J.	9	below.
7	December 12th, 1882	Alice H.	16	above
8	April 10th, 1882	Joseph S. (again)	16	below.
9	—	Kate C.	6	below.
10	September 13th, 1883	Edith N.	18	above.

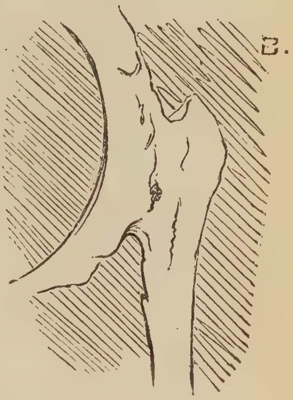
Six were done above the trochanter, and four below it. Nine were for ankylosis, one was for an irreducible dislocation. All were done in the West London Hospital, with the chisel and mallet, and under strict Listerian modes of operating and dressing. The dressings were changed, in all the cases but two, at most once or not at all. In the two exceptions, drainage tubes were used, as I now think, needlessly. Once recurrent hemorrhage necessitated a renewal of the dressings within three hours. All did well. The constitutional disturbance was surprisingly small.

Each patient was kept in bed six weeks, and allowed to discard crutches and sticks in a few weeks more.

An iodoform pad was usually placed next the wound, then a quantity of packing. Then the ordinary dressing with jaconet was applied, over all, an india-rubber bandage, covering the whole dressing completely.

The effect of the operation may be gathered by contrasting these two diagrams with the figure in the splint (further down in this paper) and from the following statement of facts.





Cases 1, 2, and 5 have now no apparent shortening whatever, and wear symmetrical pairs of boots. Case 7 wears about half an inch of cork sole. Case 3 wears a cork sole, 2 inches at the heel, and $\frac{3}{4}$ inch at the sole. The deformity in her case was originally very great. Case 4, which originally required a cork sole of $7\frac{1}{2}$ inches, is now made level by one of $2\frac{1}{2}$ inches.

In most of these patients, walking more than a mile used to cause fatigue and pain in the back. All but Case 9 can now walk vigorously. This Case 9 is very exceptional. She, a bright little girl of six years old, had never even stood in her life. She can now walk.

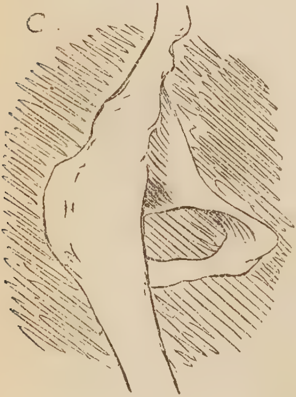
Being almost all young women and youths, they are vastly improved in spirits as well as in health; and, finding themselves no longer cripples, but merely marked by a slight limp, life has now new charms and hopes for them.

With reference to supratrochanteric osteotomy, I wish to draw your attention to certain points of importance, nowhere in surgical literature, to my mind, satisfactorily treated: 1. The place of incision; 2, the size of the osteotome; 3, the direction; 4, the position of the patient during operation;

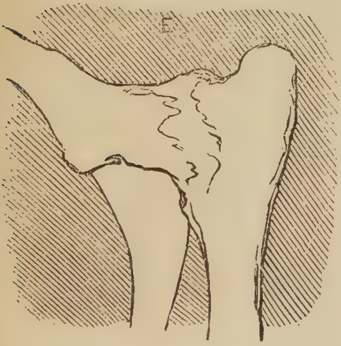
5, the method of snapping the early divided bone in two; 6, the way to bring the limb down; 7, the mode of preserving, and even of increasing, the gain as regards position.

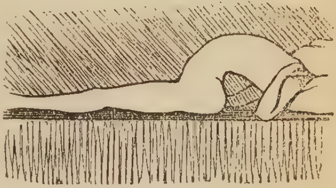
Trisect a line joining the anterior superior angle of the great trochanter, and the anterior superior spine of the ilium. Take a point at least half an inch below the junction of its middle and inner thirds. Enter a sharp-pointed steel director at this point, and pass it down to the bone you are about to divide. It will have to go downwards and inwards, but chiefly backwards; how much each way, you must judge by taking carefully the bearings of the great trochanter to the condyles of the femur, by noticing also the fatness or leanness of the patient. Send your knife along the director (the use of which was first suggested to me by Mr. Willett), and make an incision large enough to admit one finger. Pass in your finger and feel, with the pulp, the inner edge of the anterior border of the great trochanter. Do not tear the deep parts in the effort to feel more. Take out your finger, and pass in the chisel. The chisel should be large, heavy, and decidedly wedge-shaped in section.

Now for a most important point—the plane in which to place the chisel-blade. This should always make a slight, but not very large, angle with the longitudinal plane of the shaft of the femur.



Drawings, A, B. C. D. E, are from the four specimens in the Museum of the Royal College of Surgeons. C and D are respectively front and back views of the same specimen. It will be noticed that only one, A, presents anything like the appearance of the diagram placed in text-books to illustrate "subcutaneous" division of the neck of the femur. In the last mentioned diagram, a narrow saw is always placed in position, forming an angle of 45° with the axis of the femur. A saw so placed with respect to specimens B and E would either get into the pelvis, or, more probably, cause the operator great embarrassment and waste of time.





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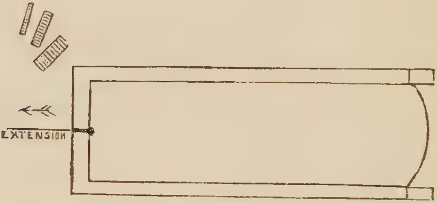
A represents a section; B, C, and E, are views from the front; D is a view from behind of the same specimen as that shown in C. All the drawings illustrate very well the necessity of getting well inside the great trochanter. All show the desirability of placing the chisel in a plane slightly oblique with respect to a plane drawn antero-posteriorly through the axis of the femur.

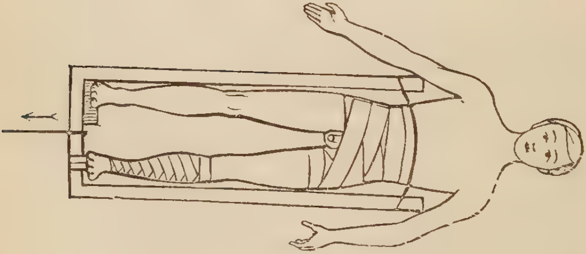
The bony points which it is necessary to examine and compare the positions of, in trying to discover the nature, position, and size of the bone forming the ankylosis are—1, the condyles of the femur; 2, the top of the great trochanter; 3, the anterior superior spine of the ilium; 4, the tuberosity of the ischium. Nos. 1 and 2 are sufficient to tell you where the femur is, and how it lies; Nos. 3 and 4 give the same information about the pelvis. The patients are often far too fat for much to be made out by direct palpation of the hip.

In the actual course of an osteotomy, as Dr. McEwen points out, the chisel conveys important information, much as a probe does. Make use of this to guide you in cutting the bone sufficiently.

The patient should lie supine on a sand pillow. In finally snapping the bone, rotate it a little as you forcibly bring it down. Put the limb in good position at once. It is absolutely necessary not to be afraid of employing force; this should be the ample force of a strong man exerting himself, but well within his strength.

I have generally tenotomised the adductors, but not very extensively. It is quite clear that a complete tenotomy of all the adductors would leave nothing to resist the strain of manipulation, except the skin and the femoral vessels. Where there are deep cicatrices on the inner side of the hip, and always in infratrochanteric osteotomy on a thin patient, you must remember the vessels.





For my first cases, I employed double extension in the after-treatment. The second weight was used to pull outwards from the upper part of the thigh. It was a source of comfort and relieved pain. But the best results have attended the use of this splint. As the annexed diagrams indicate, it is an ordinary double splint or trough, such as that invented by De Morgan, and modified by various surgeons, but entirely simple, and free from elastic bands, pulleys, springs, etc. The patient lies in it, with the foot of the side operated on strapped down to the crosspiece of the splint. Little blocks of wood, not unlike an octavo book in size and shape, are placed between the crosspiece of the splint and the sole of the foot of the sound side, and the patient is told to keep the knee of this leg straight. In this way, and without any other bandaging, the angle of abduction or adduction of the hip operated on can be regulated so nicely, that a little abduction can be made to exactly compensate for an inch or so of real shortening. Of course, pads and padding are used with the splint. Extension is not always required; when it is, apply a weight to the middle of the foot-piece (see the arrow in the diagram), and raise the bed-foot on blocks.

In conclusion, I beg of you to excuse the somewhat authoritative way in which I have laid down as law what is, after all, merely opinion open to discussion. I have chosen to do so only with a view to conciseness, and in order to spare your time.—*British Medical Journal, Feb.* 9, 1884, *p.* 261.

47.—EXCISION OF THE KNEE-JOINT—RECOVERY—WITH PERFECTLY MOVABLE JOINT.

By ANDREW BOUTFLOWER, M.R.C.S., Surgeon to the Salford Royal Infirmary.

Recovery with a movable joint after excision of the knee is so rare an occurrence that so far as I can ascertain only one or two cases have been recorded. I therefore bring this case before you as one of great interest. You will be struck not only with the ease and facility with which the boy walks about, with the very small degree of lameness in locomotion, but also by the appearance of the knee itself, differing so little in appearance from a healthy knee-joint, notwithstanding the fact that a considerable section of bone has been removed from both the femur and the tibia, as well as the entire removal of the patella. The marks of the wound are almost obliterated, and the only cicatrix exists where the drainage-tube was inserted. I would also call attention to the fact that the temperature never reached 100°; also that the wound was only dressed three times, and that within two months of the operation he could walk across the ward. Of course there is still a danger that displacement may occur owing to the division of the extensor tendon; but as nine months have now elapsed since the operation, I may, I think, fairly hope that this misfortune may be averted. I am indebted to our house-surgeon, Mr. Folkes, for the following notes of the case, as well as for his assistance.

J. T—— was admitted an in-patient at the Salford Royal

Hospital on June 4th, 1883, under my care. The boy, seven years old, was thin, anæmic, and of a strumous type. The right knee-joint was anchylosed, the leg was flexed to such a degree that the foot could not be placed on the ground, and the limb was quite useless for progression. The joint was painful, much thickened, and showed all the signs of pulpy disease following strumous synovitis. On June 22nd I excised the joint; the ordinary semilunar incision on the anterior surface of the joint being selected, the patella was removed, as well as the ends of the tibia, fibula, and femur. The synovial membrane was scraped away with a Volkmann's spoon, and the whole surface washed with a solution of chloride of zinc (four grains to the ounce). A drainage-tube was inserted and the limb put on a Watson's splint, the operation and after-treatment being carried out under strict Listerian precautions. The wound was dressed on June 23rd, 26th, and July 3rd, and was quite healed by July 5th. The temperature on the second day rose to 99·9°, but never afterwards exceeded 99·1°. The wound was quite healed on the fourteenth day. The splint was retained until the twenty-first day, and then the limb was placed in a plaster-of-Paris bandage. On August 10th he had to be sent home in consequence of an outbreak of scarlet fever in the ward. He was re-admitted on August 18th, when the plaster bandage was removed; the cicatrix was found to be firm, and the leg strong, with movement to about an angle of 100°. He was able to bear slight weight on the limb, and could get across the ward. The plaster-of-Paris was then re-applied, and he was sent to Southport Sanatorium on August 29th.—*Lancet, May* 17, 1884, *p.* 889.

48.—ON A CASE OF COMPOUND FRACTURE OF THE LEG, TREATED ON A NEW SPLINT.

By F. T. PAUL, F.R.C.S., Surgeon to the Royal Southern Hospital, Liverpool.

The following case is reported in illustration of the use of a splint which I am now recommending for the treatment of compound fractures of the leg, and disease of the ankle-joint.

Hugh R., aged 15, a rivetter, was struck by a large iron plate on the outer side of his leg. When seen, the sharp end of the upper fragment of the tibia was protruding two inches out of a wound at the inner side of the leg, in the lower third. Ether was administered, and the wound enlarged, and thoroughly carbolised. The bones were accurately fitted together, and a stout wire passed round them, and tightly twisted. Then, the patient being still under the anæsthetic, the splint was applied in the following manner.

With a strip of lead the contour of the front and back of the sound limb is taken from a few inches above the knee, down the tibia, over the toes, heel, calf, and back to the thigh. A strip of stout hoop-iron ($\frac{5}{8}$ inch × $\frac{1}{8}$ inch) covered with rubber tubing is then bent to lie easily over the outside of the lead pattern, following all its deviations accurately, so that it may fit without pressing unduly on any part (Fig. 2). When the splint is ready (it is of course prepared before the anæsthetic is given) and the bones have been wired, the whole limb is thoroughly carbolised, and the foot and leg well bandaged with antiseptic gauze, leaving a wide interruption at the site of the fracture. Over the gauze a layer of domette bandage, saturated with hot paraffin-wax, is placed, or a plaster-of-Paris bandage. As soon as the stiff bandage has set, the splint is put on, and more wax or plaster bandages are applied to retain it firmly in position. Lastly, cotton-wool is packed under the edges of the bandage at the interruption, and brushed over till saturated with Howse's mixture of bees' wax and carbolic oil, and the antiseptic dressing is completed (Fig. 1). A very little subsequent care in the dressings will prevent any discharge from getting between the leg and the splint.

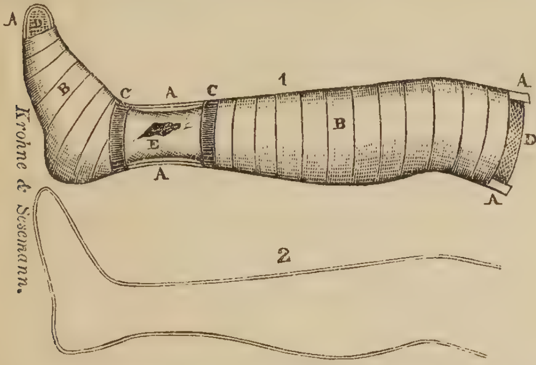


FIG. 1.—From a Photograph on the 5th day. (A) The splint. (B) The paraffin bandage. (C) The wax and carbolic oil finish. (D) The antiseptic gauze showing from under the stiff bandage. (E) The fractured limb.
FIG. 2.—The splint of hoop-iron covered with rubber tubing.

The advantages of this mode of treatment are, that no deformity of the limb can possibly take place, as the bones are wired and permanently fixed under an anæsthetic; and that the repair is rapid, owing to the absence of movement necessary in the ordinary method of dressing compound fractures. The choice betweeen paraffin and plaster-of-Paris bandages must depend upon the weight of the limb, and the fixation of the fragment. When the limb is small and the fragments are well fixed, paraffin is quite sufficiently rigid; but under the reverse conditions plaster-of-Paris should be used, at any rate for some part of the bandage. Paraffin is much the better material in every way, except for its want of sufficient rigidity in the warmth of the bed. In this particular case paraffin was used, and answered admirably. There was a good deal of oozing of blood through the night, but not a drop passed inside the splint. The case was dressed once a day for a week, and then every other day for a fortnight under the spray, when it was stopped, as the wound was healing well. On the eighteenth day the wire was untwisted, and the bones were quite firm. Granulations rapidly appeared in the bare bone at the bottom of the wound, and no necrosis occurred. The highest temperature attained was 100°, and that only on one occasion. On the seventh day the patient was dressed and taken to the Medical Institution in a cab, without the least pain or inconvenience, owing to the perfect support given by the splint; and now, six weeks after a severe compound fracture, he is up on the couch, with the wound almost closed, and the measurements of the leg in every respect normal.

In cases of disease of the ankle-joint with discharging wounds, the splint should be fixed with paraffin, or simply with strapping, leaving all the heel and instep open, and the leg well protected under the splint by a soft or paraffin bandage. If the heel suffer from pressure on the lower bar, the leg and foot should be attached first to the upper bar alone, and then by a bandage round both. The dressings should always be slipped between the heel and the lower bar, or discharge will collect there and decompose.

The splint may be obtained from Messrs. Krohne and Sesemann, in London, and from Mr. Critchley, in Liverpool. For hospital use, for compound fracture, it is best ordered in lengths of 5 to 6 feet for adults, to be bent to pattern by the surgeon; but in private practice, and for disease of the ankle, the pattern can be traced on paper from the strip of lead, and the splint ordered about half an inch larger in all dimensions than the limb.—*British Medical Journal, May* 10, 1884, *p.* 899.

49.—PLASTER OF PARIS IN THE SURGERY OF CHILDREN, AND MR. CHURCHILL'S FIXATION APPARATUS.

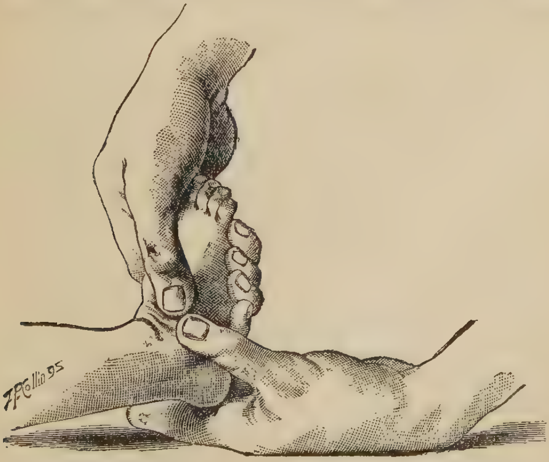
By John A. Shaw, Registrar, late House-Surgeon to the Victoria Hospital for Children, London.

It is surprising how common amongst children are cases where treatment aims at either rest to parts, relief, or prevention of deformities. The restlessness and fidgeting of children makes it most difficult to obtain absolute fixation of a broken or deformed limb by means of ordinary splints and bandages. Their limbs and joints are so small and delicate that, no matter how carefully a splint is padded and bandaged, it is as a rule clumsy, and must be applied too tight, if the position is to be kept up or the child prevented from wriggling out of it. It is commonly supposed that the apparatus which is found sufficient to encase the limb of an adult will, with slight modifications, suffice for the limb of an infant, or young child, but this is very far from being found so in practice. The points of application are so limited, and the skin so tender, that it is absolutely necessary to distribute the pressure and encase the parts.

The value of plaster of Paris splints in some shape or form is deserving of more prominent notice, especially as so many cases find their way to the out-patient room, patients who have come long distances from the country, either old consolidated deformities beyond relief, or cases of commencing curvature requiring a jacket, or other deformities requiring a splint or apparatus of some sort.

The following are examples of cases which are constantly under treatment at the Victoria Hospital:—

(1) *Talipes Varus.*—In these cases it is difficult to adapt a suitable apparatus. The usual appliances are troublesome and as a rule expensive. The smaller the foot the more unsatisfactory the appa-

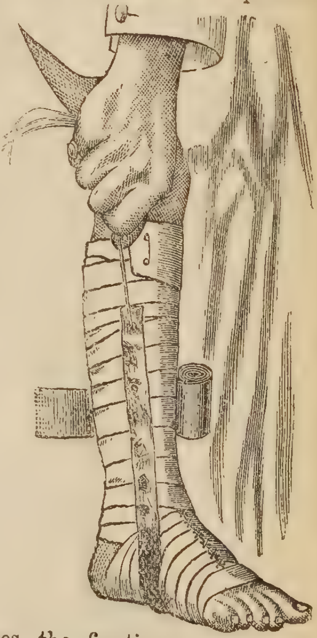


ratus, and notwithstanding all efforts, the foot will twist round to its original deformity. Scarpa's shoe, with its many screws and straps causing pressure on localised spots, is an apparatus which cannot be used with advantage in severe cases. The price too is prohibitory for poor people. Mr. Churchill has simplified matters considerably by introducing an apparatus which he has kindly allowed me to describe.

The foot is first carefully and powerfully manipulated, the ligaments stretched, and the bones moulded as much as possible to the correct position.

A circle of webbing is fixed with letter clips round the foot, a strip of thick perforated tin about one inch wide is bent at right angles, the short arm of which goes across the sole of the foot, level with the joint of great toe, and is clipped to the webbing previously applied. The long arm goes more than half way up the leg, and to the end of this arm a piece of string is attached. By pulling the string the foot is levered into a proper position, and is easily kept so by a plaster of Paris bandage applied while the extension is being kept up. The muslin clings to the jagged edges and perforations in the tin, and holds the foot with a firm grip. A flannel bandage must of course be previously applied to the foot, ankle, and leg, and the jagged perforations of the tin cling to the flannel so as to prevent rotation of the limb within the case.

The child may be allowed to walk about with this encasement, after it is properly set. In this way the astragalus and os calcis will be further moulded into the proper position by the weight of the body. Should the plaster of Paris break away, a new case must be applied after carefully moulding the tarsal bones as before.



Talipes Valgus.—In these cases the fixation apparatus is the same, but the tin must be applied to the inner side of the foot and leg so as to invert the foot and stretch the peronei and extensor muscles of the leg. The arch of the foot is generally so much collapsed that the child walks upon the inner side, and in addition to the tin, Mr. Churchill generally recommends a sausage-shaped pad, made so firm that the weight of the body will not materially compress it in walking, and this is placed across the sole of the foot, so that the tarsal and metatarsal bones shall be raised gradually into their normal position, and the arch of the foot be restored by centre compression.

In modified cases, where there is simply relaxation of the internal lateral ligament and flat-foot, the sausage pad with a spica bandage of plaster of Paris around the ankle will suffice.

(2) *Fractures of femur and tibia*, complete and incomplete, and separation of epiphyses, are common with children. The fibula usually escapes.

These can be treated well with a combination of wood or tin splint and plaster of Paris bandage. Venetian blind laths are very useful for this purpose, as they may be easily embedded in plaster of Paris without being bulky or projecting unduly from the side. The perforated tin as above described is also serviceable in all cases where the longitudinal splint is required. This combination of plaster of Paris and splint is most useful, and maintains a most perfect rest and apposition of the broken fragments.

For instance, in fracture of the femur, the usual perineal band is constantly wetted, loose and useless; while the long outside splint and bandage cannot be adapted sufficiently tight to ensure the requisite rest and apposition of the fragments. In the double splints and elastic or weight and pulley extension the upper fragment moves with the child, and with every movement there is a cry of pain. Either at once, or perhaps more safely, after the primary swelling of soft parts has ceased, a flannel bandage is applied from the ankle with spica round hip joint, and then round abdomen to thorax. On this one layer of plaster of Paris bandage is applied to cover all the flannel. Next an outside thin narrow splint from axilla to ankle; a little wool may be applied over the prominent points of pressure, and while extension is kept up another layer or two of plaster of Paris bandage is applied over all. As soon as dry the case may be varnished, which keeps it from being soiled. The child, thus having its pelvis and thigh fixed, may now be moved about without any pain or displacement of parts, and the result is most satisfactory. The plaster of Paris is apt to rub at the fold of the buttock, but a little care will obviate this.

The same method answers well in fractures of the leg. There is little or no displacement when the fibula escapes, which it usually does from its flexibility and protected position.

In fractures round the elbow joint, which are very common, passive movement should be begun early.

(3) *Curvatures of Spine.*—Chiefly angular but also lateral. Sufficient extension can often be obtained by an attendant lifting the young children up by the arms, and raising the chin and occiput in high curvatures, so that the use of the pulleys is avoided.

The jacket should always clip the anterior iliac spines; if sinuses exist, window holes may be cut in the jacket over them.

Jury masts can be easily and cheaply made by a carpenter according to instructions.

A good broad soft pad sewn to vest, and hanging down from nape of neck, completely counteracts the pressure and pain of the upright bar and curve of jury mast. The usual costly leather straps to raise and sling the head are irksome and painful. The ordinary calico roller bandage may be used instead; one strip goes from one hook of the cross-piece, under the chin to the other hook. Another piece in the same way under the occiput, and these are connected and sewn together by a small transverse piece below the ears. The comfort and simplicity are evident.

Precautions.—The fear of causing undue pressure often prejudices the surgeon against the use of plaster of Paris, but with ordinary care there is no danger.

A flannel bandage should envelope the parts comfortably; often it is found the flannel is put on too tight and not the plaster of Paris. Of course, if there is obvious pressure, pain, or swelling, the case must be cut down. Often a little judicious clipping or stuffing with wool, or in case of a joint, the application of an icebag, will render it unnecessary.

The instruments now made make it most easy to cut down plaster of Paris cases.

It is safer, perhaps, for the child to be especially watched during the first twenty-four hours, and to be within reach of relief, and the friends should always be cautioned against pressure symptoms at any time occurring.

Jackets should not be applied to rickety, bronchitic, or phthisical children, or in any case of fear of embarrassed breathing. A laced poro-plastic jacket might then take its place. It should also be remembered that some children improve and grow so rapidly on being sent into the country, that the jackets previously applied get too small and must be cut down and fresh ones applied.

Urgent pressure symptoms are extremely rare if ordinary care is taken.—*Medical Times and Gazette, July* 19, 1884, *p.* 78.

50.—ON A NEW SPONGE AND WOUND-PAD.

By SAMPSON GAMGEE, F.R.S.E., Consulting Surgeon to the Queen's Hospital, Birmingham.

Conceding that ordinary sponges may, by extraordinary precautions in boiling and antiseptic cleansing, be so used as to prevent infection, the fact remains that they are such a fertile source of mischief, as to be no longer employed by many of the most skilled and conscientious operators. Whereas even the best new natural sponges require much preparation before use, and only absorb after being moistened, the sponges made according to my plan by Messrs. Burroughs and Wellcome are always ready, and absolutely pure. The antiseptic, preserved intact within the capsule, is set free by a light squeeze just when required, and it then diffuses itself instantly throughout the sponge tissue. How quickly and powerfully this absorbs may be demonstrated by a very simple experiment. On a tumbler, brimful of water, lightly hold one of the sponges just in contact with the liquid; as this perceptibly falls in the vessel, gradually press the sponge down into it. By a little care, it is easy to fill the tumbler with the sponge, without spilling a drop of water. The sponge absorbs from sixteen to eighteen times its own weight of liquid. If the sponge capsule have been cracked before the sponge is immersed, the liquid emits the odour of the antiseptic employed; and I have now before me a tumbler containing one of the sponges and water in which it was immersed three weeks ago. The odour of the eucalyptus oil, which filled the capsule, is still most distinctly perceptible. As any antiseptic may be enclosed in the capsule, sponges may be used to make their own antiseptic and cleansing lotion, according to the indications of the case and the surgeon's views. For additional guarantee of absolute asepticity, the sponge materials may be prepared with borax, salicylic acid, or bichloride of mercury, and the sponges may be sterilised by high temperature, and enclosure in sealed vessels. In nursing patients affected with infectious disease, it appears reasonable to expect that the great sanitary principle of isolation may be promoted by burning the sponges, after using them for collecting discharges and cleansing the person. In child-bed, large sponge pads containing two or more antiseptic capsules appear well calculated to ensure comfort and safety; but as this is a department of practice in which I have no personal experience, the hint is only tentatively offered.

In principle, the new sponge and wound pad, with its antiseptic nucleus in absorbent materials, is as elastic and adaptable, as are the physical properties of its constituents. In the endeavour to discover a *via media* between theoretically conflicting systems, it is to be hoped that a practicable compromise has been effected between the antiseptic and dry methods of wound treatment,—that improved means have been devised for surface drainage and physiological pressure,—and that, by technical simplification, the practice of scientific methods in every day surgery, and in the sick room generally, has been made easier and safer.—*Lancet, June* 21, 1884, *p.* 1118.

51.—WOUND DRESSING: IODOFORM INTOXICATION.

By P. J. Hayes, F.R.C.S.Ed., Surgeon to the Mater Misericordiæ Hospital, &c., Dublin.

Recent experiences go to prove that the antiseptic properties of iodoform are not so available as to render it capable of becoming a substitute for carbolic acid. Moreover, it requires to be employed with caution, as too free an application may induce fatal consequences. It will be advisable to consider, in turn, the methods in vogue with surgeons who apply iodoform to wounds, the advantages which can be claimed for it as an antiseptic dressing, the dangers which are apt to follow its injudicious application, and the precautions to be observed when the employment of it appears advisable to the surgeon.

When the fancy for using iodoform, as a substitute for Listerism, seized the German surgeons, very large quantities of iodoform were oftentimes applied to extensive operation wounds—indeed so much as from three to six ounces was not considered to be an undue amount for introduction at a first dressing. Mostig-Moorhof, however, employs not more than from five to ten drachms. The ordinary method of using it is to shake it freely over the wounded surface, and to fill every cavity or offset from the wound with it; then to apply dressings of either iodoform gauze or boric cotton. Prof. Tripier recommends it to be applied in a more guarded manner than that by which so many unfortunate results have been caused in Germany. He always irrigates a wound with carbolic solution; and when there is so great a loss of substance that the wound-edges cannot be brought into contact, he lightly dusts the raw surface with iodoform, covering the cavity with Lister's gauze. When changing dressings he takes care not to disturb the previously applied iodoform, but after gentle washing he adds just enough of fresh iodoform to re-cover any exposed surface in the wound. This combined form of dressing he believes to be particularly suitable after operations about the natural orifices, in cases of contused or lacerated wounds of the hand, and where caseous glands have been cleared out with a sharp spoon. Tripier also favours the application of Moleschott's collodion (consisting of iodoform, 1 part; collodion, 15 parts) for incised wounds about the face. I think many surgeons in this country have had an experience as extensive and satisfactory of iodoform dressings as has been that of Prof. Tripier. The advantages which may fairly be claimed for iodoform are—that it helps to allay painful sensibility, and serves to diminish the quantity and alter the character of discharge (removing fœtor, and causing a purulent secretion to assume a more or less serous condition); its presence causes the subsidence of fungoid outgrowths, on the one hand, whilst, on the other, it hastens the growth of healthy granulation-tissue; and, if it be not disturbed, it is apt, with serous discharge, to form such a protective covering for the wound that healing, as under a scab, is likely to occur.

The ill effects of iodoform may be classed into those of minor degree and the veritable intoxication. Kænig of Gottingen, Zeissel, and others, have reported cases where an erythematous eruption followed the employment of iodoform—disappearing when it was withheld, and recurring after its re-application.

With regard to real poisoning or intoxication, the statistics of Kænig extend over 32 cases—19 men and 13 women—the majority of serious and fatal cases occurring amongst patients beyond the age of fifty years.

Kænig distinguishes two principal forms of intoxication—the light form and the grave. In the light form the patients experience anorexia, headache, loss of memory; they appear morose, or even delirious, cry without reason, and seem fearful of being persecuted. The pulse becomes enormously accelerated—the temperature perhaps slightly elevated. Symptoms subside within a few days, recovery taking place. In the grave form hallucinations of variable nature occur; sometimes delirium assumes a furious character, or the patient becomes terror-stricken, and may even exhibit a disposition to commit suicide. Food is refused; urinary secretion becomes scanty; the pulse is rapid; the temperature rises to perhaps 104° F.; the *dénouement* is almost always fatal, the patient dying in a state of coma.

Young subjects generally present symptoms resembling those of meningitis, but usually without elevation of temperature.

Kænig and Aschenbrandt have, like Martin, observed, at post mortem examinations, evidences of iodoform-pneumonia.

I think few surgeons will be found to oppose the recommendations of Martin and Veliaminoff, that iodoform should, in all cases where its use is indicated, be applied in small quantity; that especial caution should attend its use when much adipose tissue is exposed, and when the wound is extensive; that its employment is more or less contra-indicated by advanced age, tendency to fatty degenerations, diseased conditions of heart or lungs, and when there exists a susceptible condition of the nerve centres.—*Dublin Medical Journal, August*, 1883, *p.* 110.

52.—ON TUBERCULAR CARIES OF BONE.

By C. Macnamara, F.R.C.S., Surgeon to the Westminster Hospital, &c.

Caries of bone is often due to tuberculosis, but not always. For a bone such as the lower end of the femur, in consequence of chronic disease of the knee-joint, may not only be surrounded by unhealthy tissues, but is also kept at rest for months together. In these circumstances, the medulla contained in the cancellous tissue of the bone undergoes fatty degeneration, and, as in other parts of the body, this degenerated tissue disintegrates, and so cavities are formed in the head of the femur, containing a quantity of oily matter and bone-earth. It is this bone-earth or grit that sets up, not only a rarefying ostitis, but also the formation of the florid granulations characteristic of caries. The same changes occur as a consequence of tuberculosis of the medulla.

On making a microscopic examination of a bone affected with tuberculosis in its early stages, we find nodules composed of an aggregation of round cells (among which are usually one or more giant-cells), which compress and so occlude the vessels in the affected area; but the blood-channels surrounding the nodule and the spaces through which the round cells escape are choked with corpuscles. With the exception of increased cell-growth from the brood-cells, the surrounding tissues appear healthy. I have already referred to the changes which occur in the tubercles, the caseous degeneration of which, in the greater number of cases, ends in destruction, not only of the osseous tissue, but also of the joints, and the soft parts in their proximity.

Symptoms.—There can be no question as to the fact that tuberculosis of bone is in its early stages easy to cure, but most difficult to recognise; in the course of time, however, there is no difficulty as to our diagnosis; but the cure of the disease is almost impossible without extensive damage to the affected tissues. It requires no stretch of imagination to understand that the production of cell-growth in a structure like the medulla, only sparingly supplied with nerves, may progress to a considerable extent without causing pain. There is one symptom, however, referable to nerve-irritation, almost always present in cases of this kind; and that is a certain amount of stiffness in the muscles surrounding the diseased bone. This is especially the case in tuberculosis of the bodies of the vertebræ and of the hipjoint. The stiff back or neck, and the occasional days of stumbling in the early stages of morbus coxarius are well known, but too often disregarded symptoms of diseased bone. From the commencement of tubercular disease of the medulla, however, immediate and forcible pressure on the bone generally causes marked pain; otherwise, the pain is often felt at the distribution of one of the nerves connected with the diseased bone or joint. Subsequently, the pain becomes more marked, and is greatly increased if the diseased part be moved or jarred; suppuration occurs, and sinuses form leading to dead bone, with all the long continued and well known consequences.

Treatment.— We must bear in mind the fact that, supposing the exciting cause of tubercle be a bacillus, it is certain that an hereditary predisposition, and other recognised circumstances, prepare the soil in which any such influence can take root and grow. Pure air, sunlight, and plenty of wholesome food, are essential to the building up, or fortifying tissues against the action of any causes which provoke the growth of tubercles. If tubercles have formed in a bone, means tending to invigorate the patient's health must be enforced, and at the same time the diseased tissue should be protected from concussion or injury. Rest to the diseased bone is useful, and it should be employed so as to relieve pain caused by the pressure of the extremities of tender parts against one another. But, in my opinion, it is a mistake to suppose that rest, or confinement to a couch or bed for weeks and months, particularly in young children, is a judicious method of treating cases of this kind, especially in the early stages of the disease. I am convinced that the actual cautery, applied judiciously, near the seat of the disease, and repeated if necessary, is of great service in many of these cases. In more advanced instances, good hygienic conditions, great patience on the part of the patient, his friends, and the medical attendant, and the removal of diseased bone, together with free drainage, will bring about results more favourable than could otherwise be attained. Subperiosteal excision of the diseased extremities of the bones is sometimes attended with most favourable results.—*British Medical Journal, July 5, 1884, p. 5.*

53.—ON A NEW METHOD OF TREATING SPRAINS.

By Thomas L. Shearer, M.B., C.M.Edin., Baltimore, U.S.

Everyone who has had sprains to treat in practice must have been at times annoyed by the slowness of recovery of the injured part. This is not so important in hospital patients, many of whom, enjoying the life, diet, &c., of these institutions, do not object to prolonged treatment; but in the wealthier classes in private practice the surgeon must often hear complaints that the injury is so long in recovering. I have had a considerable number of sprained limbs to treat, and, after employing the usual plans of treatment, was led to adopt a new agent—clay. The clay is simply that used for making bricks, free from gravel, dried, and finely pulverised in a mortar. The powdered clay is mixed with water so as to form a thick and moist consistence. This is spread on muslin to the depth of a quarter of an inch, and applied entirely around the part. Over this is placed a rubber roller bandage, just lightly enough to keep the dressing from shifting and to retain the moisture. At the end of twenty-four or thirty-six hours the dressing must be renewed. It may be well to relate a few cases by way of illustration.

Case 1.—Mr. T——, aged fifty-eight, was thrown from his carriage, and, in addition to other injuries, received a severe sprain of his ankle, completely incapacitating him from motion of any kind. The part was hard, swollen, intensely painful, and throbbing. The dressing, as above described, was applied, and in twenty-four hours the pain was almost entirely gone, and the swelling to a great degree had subsided. The dressing was renewed daily, and in eight days the patient was going about attending to his business. The part was free from pain and natural in every respect.

Case 2.—Mr. McC——, aged sixty, slipped and sprained his ankle so severely as to confine him to bed. The treatment was the same as that employed in Case 1, and the patient was out and walking in the streets in ten days.

Case 3.—Mrs. A——, aged seventy-four, in stepping from her carriage missed her footing, and twisted her left knee violently. In a few hours the part was greatly swollen, hot, throbbing, and painful; the least motion of the joint caused excruciating agony. Pressure over the ligament was especially painful. Next day I saw the patient, and applied the clay dressing. The day after the patient was much easier, the swelling rapidly subsiding. The pain was almost *nil*, and movement of the part was not followed by such distress. The lady was walking in her house in ten days after the injury.

Dr. Hewson, of Philadelphia, about ten years ago introduced earth as a means of treating fibroid tumours of the uterus, and also sprinkled burns with the dry earth, claiming that the tendency to deformity in the latter cases was lessened. However, I am not aware of sprains being previously dressed with clay, and it was thought as well to lay the efficacy of the method before the profession. A number of other cases could be cited, but they would simply be a repetition of those already mentioned. While speaking of clay, it would, perhaps, not be amiss to state that the powdered dried earth sprinkled on the surface of an ulcer, and adhesive straps applied over it, is a capital dressing for cases which are so weak that even the weakest ointments tend to break down the granulations.—*Lancet, August* 9, 1884, *p*. 233.

ALIMENTARY CANAL,

54.—HARE-LIP OPERATION.—NEW APPARATUS FOR DRAWING FORWARD THE CHEEK.

By William S. Cheesman, M.D., Auburn, New York.

The patient, a lad æt. 18, was admitted to the Auburn City Hospital, seeking relief from this deformity. Cleft palate existed as well, but he did not wish that to be operated upon.

On April 20, 1884, the following operation was done. After etherization, the projecting tooth was drawn. The lip and ala nasi on the right side were then freed from their connections to the superior maxilla, so as to be easily movable toward the median line. In order to utilise the border of the right half of the upper lip, the lip was transfixed and a flap cut. The rest of the lip and the interior of the ala nasi were then freshened. The left half of the lip and the interior of the columna nasi were then pared, and a strong pin having been passed through the columna and ala nasi, the parts were approximated and the nostril closed. A second pin was next passed and tied. Silver wire sutures through the fleshy part of the lip, and numerous silk sutures through the approximated border completed the operation. The cheeks were drawn forward, and plaster straps applied, and iodoform was freely dusted into the right nostril and over the lip inside and out.

The patient made a good recovery from the ether, and the next morning was found to be doing well, except that the adhesive strap from cheek to cheek made considerable pressure upon the lip, causing œdema of the approximated border. To relieve the lip of this compression, while yet the cheeks should be held well forward, an apparatus was devised and applied. It consists of two curved tin bands crossing at right angles, one encircling the forehead horizontally, while the other follows the perpendicular line of the saggital suture. From their point of intersection in the middle of the forehead springs a rod which curves downward in front of the lip. A tinsmith can make the apparatus in fifteen minutes. It must then be thoroughly padded, and firmly bound to the head by roller bandages.

A piece of adhesive plaster wide at one extremity, which may be slit as into fingers, is then made to take hold of each cheek like a hand; and traction being made, the cheeks are pulled forward and the lip relaxed. The narrower ends of the plaster-strips are then fastened to the curved rod.

This apparatus did its work perfectly. At the end of a week, union being firm throughout the whole extent of the wound, it was removed, and ordinary adhesive straps applied. The result of the operation is a lip without notch or irregularity, and having none of the *drawn* appearance so common after the usual procedure. Much more easily obtained than the "cheek compressor," and obviating as it does the disadvantages of the ordinary adhesive strap, this device is confidently recommended to the notice of the profession. It is of course inapplicable to nursing children, unless they can be fed with a spoon for a brief season.—*American Journal of Med. Science, July*, 1884, *p.* 185.

55.—ACUTE INTUSSUSCEPTION IN AN INFANT EIGHTEEN WEEKS OLD.

By Herbert Collier, M.D.Brux., Gorleston, Suffolk.

William B——, aged eighteen weeks, was brought under my notice on Feb. 16th last, suffering from great collapse, and with marked signs of acute obstruction of the bowels. The mother stated that she suckled the child from birth, but as she did not have sufficient milk she supplemented this diet with small quantities of bread soaked in water and sweetened with sugar. The infant had never rejected his food till about a week previous to my seeing him, when he commenced to return a small portion of the milk after each meal; the bowels also became costive, and the evacuations slimy and highly offensive. The child, however, "appeared quite well, and seemed more hungry every day." On Feb. 15th, whilst lying asleep in his mother's arms, he suddenly became convulsed and appeared in great pain, screaming loudly and struggling, so that it was with difficulty that he could be held. After the fit had lasted a few minutes the struggling gave place to violent straining, "as if he was trying to relieve himself," and during these efforts a large quantity of gas was discharged per anum. On the diaper being inspected, it was found to be soaked with bright blood and slime, but did not contain any fæcal matter. He now appeared more calm, and after a short time took the breast, but almost immediately afterwards became very sick, bringing up a large quantity of milky fluid. Since then he has mostly been quiet, crying and straining only by "fits and starts." He had taken small quantities of milk-and-water from a teaspoon, but nearly always returned them immediately. No natural action of the bowels had occurred since an hour before the onset of the attack, although the diapers were several times found stained with "bright watery blood." Urine was passed more frequently, but in smaller quantities than usual.

When seen by me on Feb. 16th, at 4 p.m., I found the condition of the child to be as follows. He was well nourished, but much collapsed, with pale face and pinched, drawn features. There was much distension of the abdomen, and percussion yielded a tympanitic note, except where the right inguinal and hypogastric regions were occupied by an elongated swelling, which ran in a direction upwards and inwards, and could plainly be seen and felt. Pressure over this tumour gave rise to crying and struggling on the part of the infant. On account of his tender age it was not considered advisable to extend the examination to an exploration of the rectum. Three blood-soiled diapers were shown by the mother, and one of them, said to be in use at the onset of the attack, contained about two ounces of blood and mucus. Having diagnosed acute intussusception, it was thought best to resort to inflation of the bowels as soon as possible, but as an anæsthetic was necessary for the more perfect execution of this operation, some valuable time was lost in procuring the requisite assistance. In the meanwhile hot fomentations were applied to the abdomen, and a mixture containing tincture of belladonna, chloric ether, and sal volatile, in appropriate doses, was prescribed every two hours. After chloroform had been inhaled some few seconds, and before insensibility was produced, the patient became violently sick, ejecting about half a pint of pale-yellow fluid, having a strong fæcal odour. The pulse at this moment became scarcely perceptible, and the child appeared in the gravest danger; but on chloroform being suspended and ammonia applied to the nostrils, the pulse returned, and remained fairly strong throughout the remaining stages of anæsthesia. The fingers of one hand being kept in contact with the sausage-shaped tumour described above, warm water was slowly injected into the rectum by means of a Higginson's enema syringe, care being taken to prevent its return by the side of the nozzle. When about twenty ounces had been injected, a sense of the tumour slipping away was plainly perceptible to the fingers in contact with the abdomen. By the time some thirty-five to forty ounces had been injected the tumour had entirely disappeared, and the most careful examination failed to detect it. The patient was now wrapped in warm blankets, and the injected fluid allowed to drain off. During returning consciousness the child once more vomited freely, bringing up fluid of the same colour, and possessing the same strong fæcal odour, as before. Ten drops of brandy, in a teaspoonful of ice-cold water were subsequently administered and retained, and the child afterwards manifested an inclination to sleep. The hot fomentations were again ordered to be applied to the abdomen, and the belladonna mixture to be given every two hours. At 12 p.m. a large quantity of water was found to have been passed per anum. The child appeared more comfortable, and was sleeping calmly.

The features of interest in this case are so obvious that it is unnecessary to particularise them. I may, however, be permitted to state that, so far as I am able to ascertain by reference to several authors upon the subject, it affords the earliest example of recovery in so young a victim to this disease.—*Lancet, Aug.* 30, 1884, *p.* 366.

56.—ON THE CHOICE OF OPERATION IN INTESTINAL OBSTRUCTION.

By Dr. GEORGE H. B. MACLEOD, Professor of Clinical Surgery in the University of Glasgow.

I desire to bring before you, in as succinct a form as I can, an important question of practice—viz., What operation is best to perform in cases of intestinal obstruction?

It is hardly necessary for me to say that all forms of external hernia, as well as vices of conformation (as, for example, imperforate anus), hysteria (which occasionally mimics the symptoms of obstruction), are not now taken into account. What, then, are the causes of obstruction which are met with in practice?

For surgical purposes the causes may be thus arranged; but it is necessary to remember that chronic cases in their progress may become acute, and acute cases may cease to be violent; yet the general statement is true, that one set of cases occasions rapid collapse and death, while the other may be prolonged for days and weeks.

Causes of acute obstruction:—Volvulus; internal hernia; intussusception (usually, but not always); foreign bodies, occasionally; bands, adhesions, and loops.

Causes of chronic obstruction:—Foreign bodies, as a rule; prolonged constipation; stricture from ulceration; growths, as cancer, tumours pressing on the bowel; cicatrices from wounds; chronic tubercular inflammation; and rarely, yet occasionally, intussusception runs a chronic course, weeks passing before urgent symptoms arise.

It is unnecessary to dwell at any length on the obvious necessity of employing every available means of localising and defining the nature of the obstruction before any operation is thought of. It is true, we sometimes utterly fail in doing this; but more usually we are able to recognise one source and place of obstruction as being more probable than any other.

If the patient is a female, it will be necessary to obtain the history of her uterine condition.

Further, we must get the most careful account of the invasion and progress, from day to day, of this and any similar attack. We must observe with care his pulse, his condition as to emaciation and cachexia; we must give full weight to the age, posture, expression, demeanour, and strength; if there has been any vomiting it will be necessary to define its relationship in time to the other symptoms, also its nature and persistence; as to pain, its degree, time of its first occurrence, its acuteness, continuance, and exact seat. These are all points of which we must have a clear conception before we proceed to the personal examination of the patient's body in order to localise, and, if possible, detect the source of the obstruction, and so to determine, if need arise, what operation should be performed. I may here add that in such personal examination, if we wish thoroughly to explore the rectum or palpate the abdomen deeply, chloroform is capable of affording the greatest service.

On the subject of age I would remark that a consideration of it will often be of great use to us. Intussusception may occur at any age; but it is most common in early and late life. Bands and inflammatory adhesions are most frequently met with in youth; twists, again, tumours in the neighbouring organs, gall stones, stricture, and also inflammatory adhesions occur in middle life; while malignant stricture, thickening from old reducible hernias and internal strangulation by twists, and impaction in a pouch are the forms of obstruction mostly met with in the old.

Taking all cases and ages together, it is found that bands and adhesions are the most prevalent sources of intestinal obstruction, while intussusception comes next, and then malignant stricture.

Loops, bands, adhesions, and diverticula lie also mostly in the right groin, and are to be sought for there. It is the small bowel which is almost always involved in these conditions. The vermiform process is not uncommonly the imprisoning agent. Twists of the bowel (on itself and round the mesentery as axis) are commonly found to involve the ascending colon and the cæcum, and after that the sigmoid flexure is most commonly the seat of this dangerous condition. This affection, then, lies mostly in the right groin also, or if not there, in the left groin, and sometimes it is the small bowel which revolves round its mesentery, then the obstruction will lie in the centre of the belly. If the ascending colon and cæcum be the seat of twist, then there will be marked distension, and this may be one-sided, while fluids can be passed high up by injection and traced in their passage up to the right groin. Simple stricture arising from cicatrisation, or tubercular or syphilitic ulceration, or the effects of inflammatory action, may (but rarely) occur high up the small bowel. It is in the colon that contractions after dysentery are chiefly seen, and it is, as Rokitansky shows, after tubercular affection, and not in consequence of the ulcerations of fever, that narrowing of the gut is most apt to come on. No special region of the abdomen can be looked on as that in which search is specially to be made for these contractions.

Malignant stricture occurs most commonly in the large gut, and especially in the rectum and sigmoid flexure. It is epithelioma for the most part which occasions such narrowing; but any of the different forms of carcinoma may be met with in the bowel.

There is a plentiful choice of operations. First, the abdomen may be opened in the middle line, or outside of the recti on either side, or a descending coil of bowel may be cut down on wherever it shows itself. The first is, on the whole, the operation which fulfils the indications in many circumstances, as it gives freest access to the whole cavity, and there is less risk of effusion between the muscular walls of the belly, and perhaps affords the best hopes of a rapid recovery. "Laparotomy," as it is now termed, is, however, a very serious and difficult operation in cases of intestinal obstruction. As is well known, it is in no way comparable to opening the belly to remove an ovarian or other growth, as not only are the patients on whom it falls to be performed usually much exhausted by the nature and continuance of their complaint, but the bowel is so much distended that its return within the cavity of the abdomen after the parts have been examined is always most difficult (in truth sometimes almost impossible), while the manipulation which is required to attain this end immensely increases the risks of the operation. The tension too which exists after the belly has been closed is so great that all hope of that rest and freedom from irritation, which is essential to the successful treating of such wounds is often destroyed. It is not a little remarkable how, before the belly is opened, in many cases the distension of the bowel may not appear great, and there may be no great prominence of the abdomen; but so soon as the wall is divided, coil after coil of greatly enlarged and gas-distended gut come out, defying all means of repression or even protection, and causing the utmost dismay as to how best to deal with them. It is always most desirable not to puncture the distended bowel, as however small the instrument employed, there is always considerable fear of fæcal exudation, and ligatures often fail to bring the serous surfaces together so as to close the aperture. The walls of the bowel, too, are thin and weak from the distension to which they have been exposed, and so very serious damage may result. It not unfrequently happens that distinct rupture of the gut wall takes place where the puncture has been made. In replacing the extruded bowel, take care what we may, it is apt to be bruised and injured, and small extravasations of blood will now and again appear and escape into the cellular connection when pressure is withdrawn. The contact of the finger nail and finger tips must be carefully avoided, and sponges introduced between the hand and the bowel; but with all this and every care we can use harm is too sure to follow. There can be little doubt but that it is the manipulation which does such serious harm in laparotomy, and it is probably this which renders the operation so disastrous. In ovariotomy and similar operations we do not, as a rule, require to touch the bowel, and occasionally it is never seen. Further, laparotomy is, in many cases, the only available operation in obstruction occurring in very young and weakly children, yet they are wholly unable to stand so terrible an ordeal.

When laparotomy has to be performed, it is best to make at first a small opening to enable us to search for the seat of obstruction without opening the whole cavity. This must be done with the greatest gentleness; afterwards, if it is found necessary, the orifice may be enlarged. It is the empty bowel which we seek for, and this lies in the pelvis. We trace it up to the place of obstruction. This plan is better and easier to accomplish than to pursue the opposite course, which is what is commonly done. As little bowel as possible should be exposed. A sponge wrung out of carbolic solution should be kept over the hand and wound. We should search first in the neighbourhood of the cæcum, and determine whether the mischief is in the greater or the lesser bowel. The cæcum is the best starting point in all these investigations, and is a good landmark for our proceedings.

If there is a portion of the bowel in a loop, or under a band, or in a pouch, we should draw on the lower or empty part, and this way experience has also shown to be the best way of disengaging an intussusception. If we have to deal with a small band we may break or cut it, but it is better to ligature a broad or large band at two places and divide it between the ligatures, as it is difficult and troublesome to secure any vessel which may bleed.

If a foreign body is to be removed the portion of the bowel containing it should be drawn well out of the belly. After the substance has been extracted a false anus may be established by stitching the open gut to the superficial wound, or in favourable circumstances, the bowel may be united by suture.

So much for laparotomy. It is, I repeat, an operation not to be undertaken with a light heart, or in any but the most desperate circumstances. There are other methods of operative relief which are much preferable, if they can be used. Of these, colotomy in the right or left loin would, of course, be chosen if we are so able to localise the obstruction as to be sure of opening the bowel above it.

In incurable obstruction seated in the rectum and sigmoid flexure—that is, low down, left lumbar colotomy (or Callisen's operation as it should be called), is the operation which beyond doubt would be employed; but it is sometimes far from easy to be sure that by that operation we can get quite beyond the obstruction even in cases in which we seem to have clear evidence to support that conclusion. That the bowel can be safely and comparatively easily reached in either loin is well established.

If the obstruction lies in the descending colon, left lumbar colotomy (Amussat's operation) is that which should be preferred.

In the many cases in which the obstruction lies about the caput cæcum and the ilio-cæcal valve, Nélaton's operation (which is an extension and improvement of Pillore's) is beyond doubt the best surgical proceeding. Pillore opened the cæcum, but Nélaton demonstrated how by a very small incision in the right groin that region could be perfectly examined, and how with little risk life could be saved in irremediable cases by opening whatever coil of the bowel (necessarily the distended part, and so above the obstruction) protruded at the wound. The success of this operation has been great, and in the cases where I have myself had recourse to it, it has been most satisfactory in saving life. If the obstruction is such that it cannot be removed, or if the steps necessary for its removal (from the condition of the patient) involves too much risk, this is a most invaluable operation. No blood-vessel need be wounded. The bowel is not much handled or exposed, and an outlet is certainly secured for the imprisoned fæces. It is quite true that in most cases this is only palliative—that is, it does not remove the cause of obstruction in all cases, *but it saves life.*

In conclusion, I would say that, as a rule, if an operation for intestinal obstruction is to be performed,—if the physician has retired discomfited and the surgeon is asked to interfere, the sooner he does so the better. In acute cases it is a question of hours, and in chronic cases delay beyond a week is inexcusable. —*Glasgow Medical Journal, March*, 1884, *p.* 161.

57.—ON THE RADICAL CURE OF HERNIA.

By the EDITOR OF THE MEDICAL TIMES AND GAZETTE.

Within the whole range of operative surgery no more striking instance of return to ancient procedure is offered, than in the case of recent attempts to obtain the radical cure of hernia. The practice followed by the "Rupture Cutters" of the Middle Ages of the removal of the entire hernial sac, has in a modified form under the influences of modern experience and antiseptic methods, regained the foremost place as the best operation in cases in which a radical cure is contemplated.

The following paper will deal briefly with the principle of, the different methods of performing, and the indications for, the operation; also with the immediate and ultimate prognosis in cases in which it has been performed.

The principle of the modern operation is a combination of those on which two of the older methods were based, viz., the obliteration of the sac, and efficient closure of the neck by the firm organisation of inflammatory products deposited as a result of the operation. The aid of a plug of pre-existing connective tissue, an important element in the methods of Wood and Wützer, is entirely dispensed with.

For the sake of simplicity the modes of operation may be placed under the following two heads.

1. Dissection out of the entire sac, with ligature of the neck.
2. Dissection out of the entire sac, and suture of the margins of the ring.

One of these two plans, with some modifications not worthy of consideration as distinct operations, is suitable for every case of rupture, and we will at once proceed to the consideration of their adaptation to the special forms.

The first method may be employed for the cure of any variety of hernia, but in inguinal and umbilical or ventral herniæ, where a definite fibrous ring exists, the margins of which are capable of approximation, the addition of sutures carried across this ring, as laid down in the second method, is always to be recommended.

In inguinal hernia the sac is exposed and laid open, existing adhesions are freed, and the contents are returned, or in the case of omentum usually removed, as in an ordinary case of kelotomy. The entire sac is then freed from its connections and removed, care being taken to cut through the neck at its extreme limit above, to ensure which, in ruptures that have only been recently developed, it may be advisable to lay open the still existing inguinal canal. This thorough removal of the neck of the sac is a most important point in regard to possible future re-development of the hernia; recurrence being the more likely, should a depression be left at the site of the old opening as a determining starting-point. Where the sac is of very large size or of the pre-peritonæal variety, the removal of an inch or more of the neck may be advantageously substituted for complete extirpation, since the latter often involves a considerable amount of immediate and some danger of recurrent hemorrhage from the scrotal vessels, and in the case of a pre-peritonæal sac, dangerous interference with the peritonæum. When the sac is left, it should be drained from end to end to ensure its granulating up from the bottom. The sac or its neck having been removed, sutures are carried across the ring and its edges drawn together; they should have a firm hold, but care must be taken to avoid the epigastric artery. The stitches should be of silk or stout catgut cut short, and although their permanent efficacy is doubtful, they are unquestionably of immediate use if the patient has a cough, and of ultimate benefit as a means of provoking the deposition of a sufficient amount of inflammatory products in the neighbourhood of the ring, the all-important factor in the process of cure which antiseptic precautions rather tend to prevent than to favour. In this variety also arises the question of removal of the testis under certain conditions, *e.g.*, its situation in the inguinal canal, or an extremely intimate connection between the neck of the sac and the elements of the spermatic cord. In the former case, we are mainly influenced by the state of development of the organ: if it appear atrophied and useless, it should be removed, but if it be of fair size it, together with the cord, should be freed and lowered into the scrotum, so as not to interfere with the subsequent application of a truss. In the second case, where the sac has been forced down among the elements of the cord, some of these have in recorded cases been unavoidably divided, with the result of atrophy or gangrene of the organ; hence, if the *vas deferens*, or the spermatic vessels, have been accidentally cut during the operation, the testicle should be removed.

In crural or obturator hernia, the surroundings of the ring preclude the use of sutures; and here we must content ourselves with the first method, the neck either being ligatured *en masse*, or, preferably, in two halves. The sac should be drawn upon so as to ensure a high division of the neck, and then the latter is transfixed with a doubly armed aneurysm needle. The ligatures are tied on each side and the sac removed. This proceeding very materially diminishes the size of the crural opening, and yet allows temporary drainage from the peritonæal cavity, in many cases a decided advantage. The close proximity of the femoral vein has not in any recorded case given rise to trouble.

As to the propriety of employing drainage, in all cases where there is ascites, or where the state of the bowel is doubtful, a tube should be left so inserted as to drain the abdominal cavity; usually the tube should reach up to the ring only.

In considering the indications for the operation, a distinction must be made between strangulated and non-strangulated ruptures. Of the former, it may shortly be said that every case is suitable for the operation in which the patient and the strangulated bowel are in fair condition. The objections as to the enforced prolongation of the herniotomy, and the danger of cooling down a peritoneal surface, are, in ordinary cases, more than sufficiently counterbalanced by the advantages gained. The only contra-indications are such feebleness of the patient that the least prolongation of the operation might be fatal, or such a condition of bowel as to lead one to suppose the supervention of gangrene probable.

In the choice of cases of non-strangulated hernia, the exercise of a far greater amount of discretion is demanded, since here the operation is one of expediency, a serious one *per se*, in place of being a mere technical detail slightly lengthening an ordinary herniotomy. The principal points to be taken into consideration are the following:—

1. The age of the patient. As will be seen below, the operation should not be undertaken at either of the extremes of life. At both there is extreme difficulty in keeping the wound aseptic; old people are very liable to lung complication accompanied by cough, while in children it is difficult to ensure the necessary quiet.

2. The general health, as in the case of all operations of expediency, must be carefully gone into; a tendency to cough is naturally unfavourable.

3. The nature of the hernia. Many ruptures owe their origin to some radical defect in the conformation of the patient; as, for instance, general weakness of the abdominal walls, especially in the neighbourhood of the usual hernial openings, an excess of subperitoneal tissue with loosely attached or distensible parietal peritoneum, and perhaps abnormally long mesentery. Information on these points should be sought in careful examination of the patient, and enquiry as to the rapidity of development of the hernia, and evidence of such defects should carry considerable negative weight when the question of operation arises. Congenital herniæ, on the other hand, being unlikely to depend on any of these weaknesses of conformation, but simply arising from accidental patency of the inguinal canal, are *cœteris paribus*, favourable cases for operative intervention.

The above points having been determined, the indications for operation are shortly :—(1) Excessive size, the hernia being beyond the control of a truss, and interfering materially with the patient's avocation; (2) Large size, with irreducibility, since if the operation accomplish nothing further, the hernia may at least be converted into a reducible one; (3) Irreducibility with troublesome intestinal symptoms, such as the vomiting sometimes observed in irreducible omental hernia; (4) Rupture in young patients, in whom its existence interferes with entrance into one of the public services, or into a public institution. Much care is necessary in the choice of cases coming under this heading, the state of the general health and the disposition being important considerations. The operation should not be performed on children below six years of age.

Lastly, as to the immediate and ultimate prognosis; here, as in the matter of indications, a hard-and-fast line must be drawn between cases of strangulated and non-strangulated hernia. The results quoted are derived from the statistics of Leisrink. The cases are of mixed nationality, but the results seem very much in accord with those observed by the writer of this article in a limited number of cases operated on in a London hospital.—*Medical Times and Gazette, June* 14, 1884, *p.* 806.

58.—RADICAL CURE OF HERNIA BY TORSION OF THE SAC.

By Charles B. Ball, M.Ch., F.R.C.S.I., Surgeon to Sir P. Dun's Hospital, and Examiner in Surgery, Dub. University.

During the last few years the radical cure of hernia by operation has been freely discussed; and I take it that the general opinion of practical surgeons is in favour of operating in properly selected cases, and that some of the many methods by which the neck of the sac is exposed by incision, and directly treated, are much to be preferred to the subcutaneous operation of Wood, Spanton, and many others.

Obviously the most radical of these in conception, and the one which contains the most essential elements of success, is that in which the sac is excised, its neck ligatured high up, and sutures applied to the hernial orifice. Of this operation, there are several modifications, with the object in view of making the closure of the opening more complete, such as scraping the edges before suturing, as recommended by Messrs. Steele of Bristol, and Marcy of Boston; the use of the cautery for the like purpose, as recommended by Dr. Warren of Boston; and when difficulty is experienced in bringing the edges of the ring together, making liberating incisions through the tendon of the external oblique, parallel to the pillars of the ring, as recommended by Reverdin.

It is evident that we must look for something more if we hope to be able to cure hernia so absolutely, that the further use of a truss will be unnecessary; and I believe that torsion of the sac will prove to be a right step in this direction. It is probable that this addition to the operation has suggested itself to other surgeons, but hitherto I have failed to find any allusion to it in published cases.

The advantages which may be claimed for this operation are these. First, a more thorough closure of that portion of the sac situated in the inguinal canal is obtained than can possibly be obtained by any simple ligature, no matter how high up it is placed. Secondly, the twisting has the effect of tightening and throwing into ridges the peritoneum for a considerable area surrounding the abdominal opening. This I believe to be a matter of extreme importance; for, as Lawrence pointed out many years ago, one of the most fertile predisposing causes of hernia is an abnormal laxity and fulness of peritoneum in the neighbourhood of the hernial opening. Thirdly, the danger of septic peritonitis is diminished; for, if by any imperfection in the dressing the wound become septic, it is highly improbable that inflammation would spread up the tube of peritoneum closely twisted into apposition without producing limiting adhesion.

The first case upon which I operated by this method was a male, aged 23, who had a large scrotal hernia on the right side, which gave him a great deal of pain, and could not be properly controlled by a truss. He had a small hernia on the left side, which occasioned but little trouble. He was unable to follow his employment as a labourer in gas-works, and stated that, unless something were done for him, he would have to go to the union. On January 25th last, I exposed the neck by incision, and isolated the sac from the cord. This proceeding was a little tedious, as the component structures of the cord were spread out over the hernia. Separation having been completed, the sac was grasped with a clamp-forceps high up, and given six half-turns, that is, three complete revolutions. A decided resistance was now felt, and it was evident that any further torsion would be attended with risk of rupture. A ligature of carbolised gut was tightly tied round the neck, and a salmon-gut suture passed through the pillars of the ring, and also through the twisted stump, with the view of preventing untwisting. The wound was closed, a drainage-tube inserted, and gauze dressings applied. Recovery was retarded by slight suppuration about the wound, and by the formation of a scrotal abscess; but in four weeks the healing was perfect, and there has not been since the slightest tendency to recurrence. The patient is working regularly, a light truss being sufficient to keep up the small hernia on the left side.

The scrotal abscess which retarded recovery in this case, and which has been frequently noticed by other surgeons after excision, is no doubt due to the difficulty of efficiently draining the large cavity from which the sac was removed; and in future I shall always bring a drainage-tube out through the most dependent portion of the scrotum, and completely close the wound over the neck. In order to obviate the disturbance of parts necessary in the complete removal of the sac, the recommendation of Buchanan to divide the sac in two may be adopted. but I believe this is only suitable in cases of the congenital form of hernia. In this variety, as the lower portion of the sac is the tunica vaginalis, its attachments to the testicle would render extirpation impossible; but this close relation would also insure the vitality of the portion of sac left; so that, were I called on to operate in a case of the congenital form, I would divide the sac, suture the lower portion to form the tunica vaginalis, and twist up the upper portion.

In acquired hernia, the case is different, for here the entire vascular supply comes from above; and if any portion of the sac be left after ligature or division, sloughing is apt to occur.

In effecting separation between the sac and the cord, it is essential to remember that the three normal coverings of the cord are common to it and the hernia, so that it is necessary to ensure the thorough division of these on a director before attempting to isolate the sac, and to twist nothing but the thickened peritoneum and subperitoneal tissue.

In inguinal hernia in the female, in femoral or other forms of rupture, when the cord is not present to complicate matters, it is evident that the operation of twisting the sac can be carried out with much greater facility.

In quite a different category from the operation for radical cure of reducible hernia, must be placed the addition of an attempt to ensure permanent obliteration, to the ordinary operation for strangulated hernia. In the latter, the surgeon is unable to select his cases, and is frequently called upon to operate under circumstances in which nothing short of the most dire necessity would justify any surgical interference. In these cases, twisting of the sac adds nothing to the risk, and may effect a permanent cure; indeed, it would seem probable that this addition renders the ordinary operation safer, by preventing hemorrhage into the abdominal cavity, and, as above noted, by lessening the risk of septic peritonitis. It is obvious that, for statistical purposes, the cases should be kept absolutely distinct.

I have adopted torsion of the sac in one case of strangulated femoral hernia. The patient was a female, aged 54. The hernia had been strangulated for three days when I saw her, and she was suffering from chronic Bright's disease. Upon opening the sac, which was much thickened, the intestine was found to be adherent to the interior; this was carefully separated, and the hernia reduced. Five half-turns were now given to the sac, and a catgut ligature applied. As there did not appear to be any tendency to untwist, no suture was used. About three hours after the operation, I was sent for, as there was a good deal of bleeding. On taking down the dressings, a large blood-clot was found distending the wound, and passing under the surrounding skin. Having cleared out the clots, a small vessel was found and secured, after which there was no further trouble. Had the opening into the peritoneal cavity not been efficiently closed, no doubt internal bleeding would have gone on, to a possibly fatal extent. Subsequently, the patient had very violent diarrhœa, and gradually sank. She died on the tenth day after operation. At the *post mortem* examination, it was found that a small portion of the intestine (about the size of a threepenny-piece) which had occupied the hernia had sloughed; the abnormal opening was closed by a plug of lymph, and from it spirally radiating folds of peritoneum could be traced for a considerable distance, adherent in many places by recent lymph to the attached peritoneal surface; showing, when the specimen was recent, very beautifully the result of torsion.

My experience of this operation is as yet but small; I trust, however, that the present communication may be the means of inducing other surgeons to give this method a fair trial, so that soon we may have sufficient statistics from which to draw conclusions; and I am convinced that a large number of permanent and complete cures will eventually be credited to the operation by torsion of the sac.—*British Medical Journal, Sept.* 6, 1884, *p.* 461.

59.—NOTES ON THE RADICAL CURE OF HERNIA.

By W. MITCHELL BANKS, F.R.C.S., Surgeon to the Liverpool Royal Infirmary, &c.

Points in the Operation.—Before every operation for femoral or inguinal hernia it is of the greatest importance that the pubes, scrotum, and inner side of the thighs should be shaved, and carefully disinfected by repeated washings with carbolised water. Unless this is done thoroughly, any attempt at carrying out antiseptics, properly so-called, must end in failure. During the process of cutting down upon the sac, the very minutest vessels should be tied, and this should be most carefully done during the whole operation, so that, when the sac comes to be opened, no blood may flow into the peritoneal cavity. The great mistake in one's first operations is in thinking that the sac has been reached long before it has. In this way two or three extensive strippings are often made, and then, after all another layer or two are found. By these strippings the cellular tissue is torn up, as a result of which troublesome sloughing and suppuration are apt to occur. At its lowest part the sac is always more or less adherent to the tunica vaginalis in inguinal hernia, and at that point requires very careful separation, otherwise the tunica and its contained testicle are apt to be pulled bodily out of the scrotum. No very serious harm results from this, even when it does happen, but it tends to that tearing up of the scrotal tissues which has just been deprecated. As regards the structures of the cord, the only one about which there need be any anxiety is the vas deferens. Very early on in the process of clearing the sac it ought to be found, and kept carefully in view during the whole operation. As for injury to the vessels or other constituents of the cord, this does not seem to affect the testicle at all. In the case of congenital inguinal herniæ, there is always much more difficulty in separating the cord than in any other form, and in young children, in whom the peritoneal tube is very thin, it is most difficult. In congenital herniæ it is necessary to divide the tube a little way above the testicle, so as to make a tunica vaginalis, which ought to be stitched up with fine catgut. The rest of the tube is then stripped up to the ring, and tied and cut off in the usual manner.

The treatment of omentum contained in the sac.—When the sac has been dissected out, and the contained bowel pushed up into the abdomen, there is often a strong temptation to ligature it at once without opening it. I do not consider this a prudent thing. I think the sac should always be opened and examined, because, although one may feel absolutely certain that no bowel remains, there is often a very thin slip or tag end of flattened omentum lying just outside the ring, and adherent round the neck of the sac. Now if this be cut across with the sac, its inner end still remains attached to the abdominal wall opposite the internal inguinal aperture and acts as a pioneer for more omentum and for bowel to come down. Concerning the removal of omentum, whether adherent or not, not the slightest dread need be entertained of cutting away any amount of it. Recollecting what a source of anxiety a bit of omentum used to be, and how one was always warned against meddling with it if possible, I cannot but regard with astonishment the way in which one in the present day cuts away pouches of peritoneum and sweeps off huge masses of omentum apparently with impunity. Now that I look back upon it, this dread of omentum was without doubt the reason why many cases of operation for strangulated herniæ proved fatal. For instance, the sac being laid open, bowel and a piece of adherent omentum were found. The stricture was freely divided, and the bowel returned. Then the omentum, if adherent, was left lying in the sac, unless, indeed, it were so gangrenous that its removal was obviously imperative, and even then it was cut away with fear and trembling. Septic suppuration having taken place in the superficial tissues, spread to the sac, crept up along the omentum to the peritoneal cavity, and so caused death from putrid absorption.

One great comfort about large masses of omentum is that, however big they may be, they are always tolerably narrow at the neck of the sac, if they have been down for any length of time. It is quite satisfactory to find how, after two or three ligatures have been tried, a great bulk of fat can be cut away, only requiring that a comparatively small stump need be replaced in the abdominal cavity. Small pieces can of course be removed by one catgut ligature, but large masses must be split up into half-a-dozen portions if necessary, and these tied separately either with thick catgut, or, when hard and dense, with carbolised silk. I have removed many pieces as large as the fist, one three-quarters of a pound in weight, another a pound and a half, and another two pounds, all but three ounces. The solitary point of danger is the bleeding. The amount of omentum removed and the number of ligatures put on seems of no consequence, but at any sacrifice of time and patience every possibility of hemorrhage must be securely provided against before the stump is returned. In separating adherent omentum from the body of the sac, bleeding may be disregarded, provided no blood is allowed to run up into the peritoneal cavity. But at the neck of the sac, where adhesions are very prone to occur, the greatest care in separation should be exercised. It is most important that the adhesions at this part should, if possible, be broken down, as, if this is not done, the omentum stump remains fixed to the abdominal wall at the inner opening of the ring or even in the canal, and so remains as a persistent guide for something more to come down in its track. The omentum stump should be cut quite adrift from the abdominal wall, and when pushed up should tumble loose into the abdominal cavity. As far as I can see it does not matter how tight the ligatures are tied, the tighter the better. Only the omentum should not be cut off too close to the ligature, lest it slip. A good large stump should be left for safety's sake. In splitting the omentum up to allow of several ligatures being put on, too great care can hardly be exercised not to split up a big omental vein. These veins are excessively thin, and a very little pressure empties them. An empty one can be quite easily torn longitudinally, and then, as one side goes to each tied-up pedicle, it is kept permanently open, and when the stump is returned, and all pressure taken off, it bleeds furiously. This very accident once happened to me, and gave me a very great fright. The patient, Edward Hancox, aged 41, was admitted with a strangulated inguinal hernia, upon which I proceeded to operate. Having dissected out the sac, I opened it, divided the stricture, and reduced the gut. There remained a considerable mass of adherent omentum, which I split into three pieces with my fingers, and having tied each piece with catgut, I cut off the mass, and restored the stump into the abdomen. No sooner was this done than venous blood began to pour out of the external ring. Thinking my incision for dividing the stricture had cut some abnormal vessel, I slit up the neck of the sac and the external ring, and saw the nick I had made, from which no blood was coming. The bleeding evidently came from the abdominal cavity, as was shown by the fact that when a coil of bowel came down and plugged up the inguinal ring it stopped, but the minute this coil was pushed up by the finger the blood gushed out again. It was clear that the bleeding could only come from the stump of the omentum, which had been returned into the abdominal cavity, and that this must be found at all hazards. So I ripped up the inguinal canal, and then the abdominal wall along the outer edge of the rectus for a good way, but the omentum would not come in sight, so the ripping was continued to a point higher than the navel. By this time nearly all the bowels were rolling about the table or over the man's abdomen. At last the omental stump was found within an inch of the transverse colon, and from it blood was issuing, although the great gushing had stopped. I was in too great a hurry to note exactly what had happened, but put two catgut ligatures around the omental stump, and at once proceeded to replace the bowels; a task which took all hands to accomplish, as they slipped about like water. The peritoneum was stitched together with five catgut sutures; after that fourteen silver wire stitches were employed to unite the muscles, and then the skin was sewn up. Finally the sac was cut off and tied, and the ring pillars were brought together with a couple of wire sutures. Once or twice during the operation the patient seemed at death's door from shock and hemorrhage, but by keeping his head low, and injecting him with ether, he was kept going. Fortunately he made a most excellent recovery, with only a couple of degrees rise in temperature during the first three days. He works as a painter and wears an abdominal belt to support the great line of incision, but no truss, as no hernia comes down. A case of this sort naturally gave one great anxiety for the moment, and I have ever since been scrupulously careful both in splitting up omentum, and in tying it afterwards.

Removing the sac and stitching the ring pillars.—The sac having been thoroughly separated and opened, and its contents having been disposed of, it should be well pulled down and tied as high up as possible, whether at the femoral or the inguinal apertures. The great object of the whole proceeding is to restore a uniform surface to the peritoneal wall, and hence the higher up the sac is tied, the better is the chance of this being permanent. When this operation was first undertaken the theoretical critic at once started the objection that as the peritoneum was an eminently elastic membrane, you might take away the sac as cleanly as it was possible to do, but the distensile membrane would be immediately pushed out into another sac opposite the weak aperture. As a matter of fact this is not so, but, apart from that, the reasoning was not quite correct. The movement of the bowels over the front of the abdominal wall is, so to speak, a liquid movement. It is the searching sweep of a great wave slowly rushing up the face of a breakwater. If the breakwater can only preserve a smooth surface, with every joint well cemented, then it will stand, although there may be more than one weak place in its backing. But the moment the surface gives way at any point, there the water persistently presses in and in till the stones around are undermined and a breach is made. Clearly, then, however we may strengthen our bulwark behind by stitching up the ring and applying a truss, the first thing to do is to keep its water surface—its peritoneal surface—free from any inviting pouch or depression. Indeed, in the case of femoral, umbilical or ventral ruptures, this is all we can do.

Turning next to the pillars of the ring I employ two, three, or four silver wire sutures to pull them together, inserted with a curved needle in a handle. Room must, of course, be left at the lower part of the ring for the spermatic cord to pass through. The wire should be thick; so thick that a single knot on it will suffice to make it hold without any second knot or without twisting. Then it should be cut very close to the knot, so as to leave no sharp projecting ends. In the few instances where I have seen a wire suture work its way out, this point had not been attended to, and its sharp ends had irritated the tissues till they ejected it. With the ends cut close off, it is simply a minute circle of silver; than which there is nothing less irritating. I adhere to the silver suture and strongly recommend its use for the one reason that its hold is certain and enduring beyond that of any other suture, while it is as harmless as any. Of course the theorist, who wants to use the latest novelty in sutures, has his cut and dried objections to the somewhat old-fashioned wire. It *must* be clumsy and cumbersome; and it *must* come out; and it *must* do this and the other. The simple answer is, it doesn't. It quietly embeds itself and is no more seen except in the rarest instances, where a great deal of suppuration has taken place. In the case of the man who had hemorrhage from the omentum, recently narrated, some sixteen silver sutures were put in, and we never saw any of them again. Of course every surgeon may use what suture he pleases; all that I object to is that persons should evolve out of the depths of their own consciousness arguments against the wire suture, when they have never tried it and don't know anything about it. Personally, I have tried all sorts and have decided upon the silver wire as the best.

When an inguinal hernia is not very large the approximation of the ring pillars is quite easy. But in the case of great ruptures all the parts about the ring and canal are widely separated and displaced. In such cases I always feel very carefully about with the forefinger of the left hand for the epigastric artery before thrusting the needle through the tissues. On one occasion I did discover it, and it was just where I was about to push in the needle. It would almost certainly have been pierced, a circumstance which might have given rise to not a little trouble and delay.—*Medical Times and Gazette, July* 19, 1884, *p.* 71.

ORGANS OF URINE AND GENERATION.

60.—ON THE TREATMENT OF STRICTURE OF THE URETHRA BY INTERNAL URETHROTOMY.

By Sir Hy. Thompson, Surgeon-Ext. to H.M. the King of the Belgians; Prof. of Surgery and Pathology, Royal College of Surgeons; Consulting Surgeon to University College Hospital.

It will not suffice for the purpose of affording substantial relief to a patient, whose urethra is narrowed by stricture in two or three distinct situations, to divide, however freely, only the chief of these and leave the rest untouched. So far from a secondary narrowing disappearing after what has sometimes been termed "the master stricture" has been cut, it often happens at no distant period that the points formerly slightly affected seem to assert themselves more obstinately than before. I cannot, therefore, insist too strongly on the value of an axiom, which I will venture thus tersely to formulate: "If you cut at all, cut all;"—that is, all the points in the urethra at which the presence of obstructing deposit is to be demonstrated, and all the obstructing tissue at each point. Such is the unhesitating conviction which a long and large experience of internal urethrotomy has forced upon me. In the year 1854 I published the Jacksonian essay referred to, and after much personal intercourse and study with Professor Syme, I adopted his view in relation to the permeability of stricture, a circumstance which I now regard as one of the most valuable of the many important lessons I learned from that most able, fearless, and honest man. I have in the course of my life met with three instances in which after much careful manipulation I have been unable to pass an instrument fairly into the bladder, and in these three instances only have I performed perineal section for the relief of stricture, without a guide previously passed. Between 1852 and 1855 I operated by Syme's method of external urethrotomy upon a grooved staff, nine times only, thenceforth exchanging it for internal urethrotomy which I have practiced systematically ever since; at first on the very worst forms of the disease only, and gradually as the result of increased confidence in it, and satisfaction with the results, much more frequently than at first. And now and then, but very rarely, for example, when large abscess and perineal fistula affect the perineum, the division on a grooved staff has still been resorted to. These remarks on this important subject lead me now to present briefly an epitome of what my experience has led me to regard as the safest and most efficient mode of treating a confirmed example of organic stricture of the urethra.

I think it will be agreed by most experienced surgeons, that on first verifying the presence of a urethral narrowing, *the history of which is recent*, as a rule nothing need be done beyond gradually restoring the calibre of the canal to its normal state or thereabouts by means of flexible bougies. The well-known form styled "olivaire" can scarcely be improved, and if it is desired to carry the process of dilatation as far as possible, the well-polished tapering silver or silver-plated steel dilators are very efficient, and at the same time unirritating to the passage. Modifications of the flexible bougie are, however, now so numerous, in regard to form, material, and even also to their internal contents, that each surgeon will doubtless employ most advantageously that which best accords with his own views and with his own manner of manipulating. There are of course congenital organic as well as acquired narrowings of the external meatus, and near to it, which will not dilate, and which a simple incision suffices to divide. Strictures also affecting the canal within three or four inches of the orifice do not benefit much or for any prolonged period by dilatation. But when in the ordinary case of recent stricture the canal has been restored to a full calibre by dilatation, it may be often maintained so by an occasional regular use of the bougie by the patient himself for several, sometimes for many, years. In after-life, however, as all the tissues become more rigid, those which form the stricture also dilate less readily, and a smaller instrument than formerly can now only be passed. But sometimes even this sign scarcely shows itself, for which reason I think it unwise as a rule to propose an operation in the early stage of stricture, but prefer to afford a patient the chance of its being amenable for many years, if not altogether, to the very simple treatment indicated; but whenever a decided tendency to contract manifests itself, be it sooner or later, I think it is wise to resort to internal urethrotomy without delay. Were this plan always pursued we should have no perineal abscesses or fistulæ, no consecutive chronic cystitis, with organic changes in the bladder, ureters, and kidneys as a result. To advise the delay of an operation until symptoms indicate that such complications are appearing involves complicity in a course which irretrievably damages the patient's life. Hence I have no hesitation now in advising internal urethrotomy whenever organic stricture, single or multiple, near or distant from the meatus, shows signs of not yielding readily to dilatation. No delay is in these circumstances of any value as regards the stricture itself.

When cases are first met with in a more advanced stage, when the use of dilating instruments is liable to be followed by temporary retention of urine or by rigors, then very little question can arise as to the propriety of operating. It is very rarely too late to incur any risk there may be in doing so; and the persistence of the phenomena must, if not checked, undermine the constitution of those who are the subjects of them. In relation to those cases in which rigors almost always occur after the passing of a bougie, I know nothing so admirable as the results of urethrotomy, since, if completely performed, the operation itself is in these very cases rarely followed by such an occurrence. I am convinced, therefore, of the necessity of ensuring complete division of all the obstructing tissue, not only in relation to future results, but to the present well-doing of the patient, and thus have an additional support for the value of my maxim, "If you cut at all, cut all."

This brings me to a very important subject, How are we best to ascertain before undertaking to divide the morbid tissues constituting stricture what are their extent and situation? In other words, What is necessary, for our purpose, to be done in order to diagnose the physical condition of the urethra? It may first of all be remarked that in a simple and recent case of strictured urethra, and therefore for a large proportion of all the cases of stricture, a very simple proceeding suffices to ascertain where and to what extent the canal has been morbidly narrowed; and as all instrumental interference with the urethra, however delicately effected, is apt to provoke irritation, which in a few persons is serious; we are not warranted in introducing large or complicated mechanical contrivances for the purposes of diagnosis—at all events in recent cases. It suffices for the purpose to introduce a full-sized bougie, by which I mean one which will pass in a healthy urethra without stretching it, merely separating its walls to about the same extent as the flow of a full quantity of urine will do when it passes naturally. Such a stream in most persons equals a volume, perhaps, of 10, 11, or 12 of the English scale. If such an instrument fails to pass, we diminish the size until one is found which does pass, after which dilatations may mostly be speedily and efficiently made, and nothing more may be necessary. If more specific information is desired in an exceptional case, a series of solid bulbous-ended instruments, of which the stem is slender, and each bulb follows the sizes of the catheter scale employed, will supply accurately the data required, and on the easiest terms possible to be obtained. Such a series I have used for thirty years, and no other, except for trial; and I have never seen any plan equal to this for simplicity, efficiency, and for effecting the object without inducing irritation; they are better also than flexible instruments of the same form, which are less easily used and are far less accurate in the indications they afford.

Suppose, then, the case of a patient for whom it is decided to perform internal urethrotomy. The external meatus is first examined, and it is often found to be contracted; a bulb, say No. 11 or No. 12 in size, passes tightly through it, and stops perhaps at an inch or more from the orifice; after the use of three or four smaller sizes, a No. 9 passes, and meets a check at five inches; and here, after other trials, a No. 2 or No. 3 goes on into the bladder. On withdrawing the bulbous instrument, the situation of the contracted parts is again verified by the check which the bulb receives in passing them in its progress outwards. It is clear therefore in such a case that there are at least two chief points requiring incision, besides the orifice. This is all that need be ascertained before the patient is insensible for operation, when the examination may be repeated if the surgeon desires to do so with more minuteness before incising.

Now, at this point it is necessary to consider some preliminary questions of importance—namely, What is the principle on which an intra-urethral incision which is out of sight ought to be made, and what is the best instrument to accomplish the purpose? Is the division of tissue to be complete, and to be made solely according to the judgment of the operator; or is it to be made by a machine, the action of which is not necessarily to divide all opposing tissue, but simply to do so sufficiently to permit the introduction of a fair-sized catheter through the urethra, when the cutting instrument is withdrawn? For example, we may introduce a small-grooved staff along the urethra into the bladder, and then slide along the directing groove a blade more or less protected, so as to divide such tissues as lie within range of its point or edge and no more. But this, I contend, is not an efficient mode of dealing with urethral obstruction, if its complete division is the object to be attained. Complete division, indeed, is rarely thus accomplished; much of the diseased tissue usually escapes the blade; the result is uncertain and is far less perfect than that which follows a section made by a knife directed by the will of the surgeon against the resistance encountered at the time and previously ascertained by exploration. I suppose that a keen blade of appropriate form and completely under the control of his hand would be always employed by a surgeon, for use in any other part of the body than the urethra, when he desires to make an incision, the limits of which are to be carefully defined. For my own part, I can see no reason why that spot alone should be exempted from the action of this principle. Take the fibres which confine a hernia, for example; here the finger and the blade act in perfect harmony, the section depending entirely on the delicate perceptions of the former, which determine the surgeon's judgment during every moment of the cutting act. The section in tenotomy is, perhaps, a still more apposite illustration of the necessity that exists for an intelligently made division of every fibre which opposes the return of the limb to its natural position. A like control should govern the act of dividing those bonds which encompass the urethra and form the stricture. No mode of section is half so certain, so safe, and so satisfactory, as that of drawing through them from within outwards a little blade attached firmly to a long slender handle, a proceeding completely under the control of the surgeon's hand. I know that this is not the generally accepted mode of operating either here or elsewhere. It is precisely for that reason, cherishing, as I do, strong convictions as to the superiority of the method, that I have determined to make its advocacy the main theme for our consideration to-day. I am told, both here and abroad, that the cutting blade sliding in a groove of which Maisonneuve's instrument is the type, is so simple and safe a proceeding, that any man, however unpractised, may perform it. Is that a reason in its favour? The same doctrine was very lately taught in relation to the method of splitting strictures, by means of two diverging rods, at one time so much in vogue; now so completely and so properly neglected, but always so easy of performance. Are we to accept an unsatisfactory proceeding because of its universal applicability, and thus be content to establish an imperfect standard for the sake of bring it within the reach of incompetent operators? Between the two systems now under consideration there is this difference—one is the product of a machine, and the other is the handicraft of an artist. And the same distinction which is so obvious in regard to innumerable forms of human activity, between the uniform and commonplace results of machinery, and the finished achievements of the intelligent painstaking artist, marks the character of the two modes of operating now in question. And let me remark that the practice of operative surgery becomes a sorry occupation, if it be not indeed an art; and a very fine art too. So far as it becomes a mere matter of mechanical contrivance it ceases to be worthy of the devotion of a man of parts. A cultivated hand is the most cunning and effective source of power; and the simpler the instrument employed the greater is the influence of that hand and of the intelligence which guides and permeates it.

In operating for stricture I have during the last twenty-five years used only a little blade with a long handle, and have always commenced by placing that blade on the further side of the stricture, and made the incision in a direction towards me—that is, from behind forwards, cutting just so much in length and in depth as the obstruction perceived at the moment appears to demand. Now, in order to place a small blade beyond or on the bladder side of a stricture, a certain amount of space in the urethra is required. In the case above supposed, in which the deeper stricture of the two admits only a bougie No. 2 in size, there is not room for a sufficiently strong instrument containing the blade to be so placed. But a little dilatation will enable it to pass; the calibre of No. 5, English, suffices for our purpose. Hence in such a case I simply tie in a gum catheter (No. 1 is ample for the purpose), and retain it there two or at most four days. By that time, without changing the catheter for a larger one, or only once, the necessary enlargement of calibre is accomplished. The urethrotome which I employ is made on the principle of one used many years ago by Civiale, but in a manner differing widely from his, already described, and modified in one or two points by myself. The bulbous end has a mean diameter of No. 5, the stem is about two and a half or three inches. The patient being under the influence of an anæsthetic, the little catheter which has been tied in is withdrawn, and the urethrotome is first introduced as far as to the deep-seated stricture, through which the terminal bulb is then insinuated. It must now be passed fully half or three-quarters of an inch further in—that is, beyond the stricture, and the blade being exposed in a direction towards the floor, is pressed firmly thereon, and drawn forward, until all resistance, sometimes considerable, is completely overcome. A touch on the button near the handle sheathes the blade, and the outward movement proceeds until the site of the second stricture is reached, when another incision is made in the same manner as before. The urethrotome is then withdrawn, and the meatus freely divided by a scalpel or a short urethrotome. I next take a blunt metal bougie or dilator No. 15 or No. 16, English size, and ascertain if it will pass without obstruction into the bladder. It generally does so at once; if, however, its progress is arrested at any point, the situation of this is carefully noted, when I withdraw the dilator, reintroduce the original urethrotome, and divide the opposing tissue. But this, as I before said, is seldom necessary. I may add that I am very rarely satisfied with anything less than the free and easy passage after the operation of a metallic sound, No. 16 in size, and in some cases No. 17 or even No. 18 will pass. A gum elastic catheter, No. 12 or No. 13, is then tied in, and should remain always forty-eight hours, with an extra twenty-four hours or forty-eight hours if the incisions have been deeper than usual, or if hemorrhage is free or continuous, the latter being a very exceptional occurrence. It is sometimes objected that if a small instrument can be easily passed through the stricture, and if this may be easily dilated so as to admit a urethrotome as large as No. 5, why should any cutting operation be performed? The reply need only be brief; the object of division is to remedy the tendency to recontract, which certain strictures exhibit, and which almost all do when they have continued several years. In other words, it is marked contractility in a stricture, and not mere narrowness, which renders operation by incision desirable.

An important inquiry remains, What are the results of internal urethrotomy in relation to the reappearance of stricture? Does the operation free the subject of it from that liability to return which constitutes the very serious character of the disease when treated only by dilatation? The reply to this question cannot be a simple and categorical one; it must be made with limitations. I may remark, first, that it may be taken for granted that no mode of urethrotomy which fails to ensure complete division of the obstructing tissues has a chance of affording permanent immunity from the complaint. Whatever the mode of operating, if incomplete division only is effected, the patient will find his urethra narrowing after a more or less prolonged interval of time. What happens, then, in those cases in which, as far as the operator can judge, he has effected a complete division? Well, I am free to confess that it is not possible to promise immunity from return. We may render the period of return remote, we may produce a good calibre easily maintained by occasional regular dilatation, a procedure which before the operation was not only ineffective, but painful and irritating; we may place a patient in a condition of health and comfort for several years, meantime saving his bladder, ureters, and kidney from the slowly but surely occurring grave changes which threaten his existence. Now and then, but rarely, I have met with a case in which the patient's troubles have never reappeared. I am certain we cannot reckon on this result as a rule, and I mistrust claims to the contrary, as due to error of judgment, or want of information; or as prematurely made—*i.e.*, without waiting sufficiently long to observe remote results. In enunciating this opinion, I have no hesitation whatever. But herein I have stated the worst in regard of the patient's prospects; and have shown you the reverse of the medal. Thus, supposing after a few years the patient finds himself unable through reappearance of contraction to pass a bougie of adequate size, division can again be resorted to. It is not a dangerous proceeding, necessarily occasioning hesitation on the part of the patient, when his condition demands relief. Just as in calculous cases, a second, a third, or even a fourth stone, can be and often is safely removed by lithotrity when, after the lapse of time, fresh products are formed; thus also may a stricture be dealt with by this operation, a second or a third time if necessary. By the prompt resort to the remedy, should it be again required, the disease may be confined to the canal, and the real gravamen of the malady, the implication of vital organs, certain to result after long-continued ineffective dilatation, is altogether avoided.

I have performed this operation now for between 300 and 400 patients. Some of my earliest cases were, from want of sufficient confidence and experience, less completely and freely cut than those on whom I have operated of late years; and a few of the early patients have been recut. I have not regretted such advice in a single instance; for the advantage to them has been undoubted. The risk of the operation is very small. Estimating the number of patients on whom I have performed it as 340, which is within five more or less, the deaths have been six, or not two per cent. These were due, to pyæmia in three; to embolism in one; to extravasation and exhaustion in two; one of the latter was a case in hospital almost thirty years ago, among my earliest, and he was unfit for any operation.

The sum of my experience is the expression of a strong conviction that internal urethrotomy completely performed should be resorted to as the best and safest treatment of stricture, as soon as the easy use of the bougie fails to maintain the urethra patent, or to allay signs of irritation in the bladder arising from obstructed urethra. It is the best means not only for relieving urethral obstruction and its painful symptoms, but for ensuring the future sound condition of the organs which lie behind it.—*Lancet, June* 14, 1884, *p.* 1061.

61.—ON THE TREATMENT OF STRICTURE OF THE URETHRA BY INTERNAL URETHROTOMY.

By Walter Coulson, F.R.C.S.Eng., Surgeon to the St. Peter's Hospital for Genito-Urinary Diseases, London.

There can be no difference of opinion with regard to the danger of neglecting stricture of the urethra; retention of urine, perineal fistulæ, cystitis, and suppuration in the kidneys are the most serious, and, at the same time, the most common consequences. Besides obviating these possible evils, we are often called upon to interfere in order to relieve the pressing symptoms of stricture and to prevent their recurrence; and I propose to explain what I believe to be the best means for attaining these ends. I do not intend to discuss the symptoms or the diagnosis of stricture; my remarks will be confined to the various methods that may be employed for effecting a permanent or radical cure. By this I mean the restoration of the strictured portion of the urethra to its normal calibre, in such a manner that the improvement will be not temporary but permanent.

Many methods have been, and are still, employed; the most important of these are four in number, namely, dilatation, rupture, external and internal urethrotomy. With regard to dilatation, either gradual or continuous, it is, of course, the simplest and the safest method, and it should always be first tried; but it is often found inefficacious for old standing indurated strictures, for those which are characterised by resiliency, and for strictures of traumatic origin. The second method, rupture or divulsion of the stricture, is open to many objections. With the ordinary instrument, the stricture cannot be lacerated or split without the risk of tearing, at the same time, the healthy portion of the urethra. Besides, it is impossible to estimate the extent to which the stricture has been split, and, if much force be used, the laceration is likely to involve the deeper tissues of the urethra. Another grave objection is constituted by the fact that, in neglected cases, the cicatrices, after Holt's operation, give rise to contractions as resistant as strictures of traumatic origin.

We now come to the methods which involve incision of the urethra; and, first, as to external urethrotomy. In this operation, to which the late Mr. Syme's name has been attached, a staff is passed through the stricture; and upon this, as a guide, an incision is made from the perinæum. The results of this operation, so far as can be gathered from statistics, are in general very satisfactory; but it should, I think, be reserved for severe traumatic cases, and for cases complicated by perineal fistulæ and abscess. A less serious operation, and one in which only the diseased parts are dealt with, is much more generally applicable. To put the case briefly, I would say that, with the exceptions just mentioned, internal urethrotomy should be performed when the method by dilatation is impracticable, and also when retention recurs in spite of dilatation.

Internal urethrotomy can be performed in two ways; that is to say, the stricture can be incised from behind forwards, or from before, in a backward direction, towards the bladder. Each plan has its advocates, and it must be admitted that extremely good results have been attained by both methods. Still, as I shall presently attempt to show, the division of the stricture from before backwards is, for several reasons, to be preferred to the other plan.

At St. Peter's Hospital, we are accustomed to use the urethrotome known as Maisonneuve's, but modified and improved in various ways by Sédillot, Gouley, and in particular by my colleague Mr. Teevan. The instrument consists of a grooved staff, which is introduced into the bladder. A triangular blade, with a stilet attached, is made to slide along the groove; and the blade is contained in a double sheath, from which it is protruded when the stricture is reached. In Maisonneuve's original instrument, the blade was furnished with a knob, and the groove extended to the end of the staff. The groove in this instrument terminates two inches from the end; it is likewise fitted with a wire stilet, on the withdrawal of which urine will flow if the instrument be really in the bladder. The knob on the blade is replaced by the double sheath which encases the knife. The instrument terminates in a small screw, by means of which it can be attached to a conducting bougie which guides it into the bladder. Before making the incision, it is of great importance to be quite certain that the instrument is really in the bladder; for, in the absence of such proof, a false passage might be divided instead of the stricture. After this instrument has been passed, the stilet is withdrawn, and urine will then escape if the bladder have been reached.

The operation is performed at St. Peter's Hospital in the following manner. A fine flexible guiding bougie, equal in size to No. 4 or 5 F., is passed into the bladder. The staff or sheath of the urethrotome is then screwed on to the guide, passed through the stricture into the bladder, and held in position by an assistant. The operator, with his left hand seizes the penis just behind the glans and draws it forwards; with his right hand he pushes the stem of the sheathed knife down the urethra until the obstruction is reached; the knife is then protruded, and all resisting tissue in front of it is divided. The incision is thus made in the roof of the urethra. The knife is then withdrawn into its sheath, which is pushed along the urethra in order to ascertain that the division has been complete. If it be so, the instrument is immediately withdrawn. A full sized silver catheter is then passed; the bladder is emptied, and the catheter is at once withdrawn.

It occasionally happens that some difficulty is experienced in the introduction of the catheter after the operation. In some cases this is due to the staff having been held too far out by the assistant, so that the stricture is not completely divided. But this difficulty will not be experienced if the sheath be found to pass freely through the stricture after division. If it meet with an obstruction, the incision must be repeated. The passage of a full-sized silver catheter suffices to prove that the calibre of the urethra has been restored to its normal dimensions.

With regard to the after treatment, the ordinary course is as follows. Immediately after the operation, the patient, of course, remains in bed; hot bottles are applied to the feet, and three grains of quinine are given with half an ounce of brandy. A little warm beef-tea is also given from time to time. If no rigors occur, the patient has a hot bath at night, and 48 hours afterwards a French bougie, corresponding in size to the catheter used after the operation, is passed along the urethra. The patient is then allowed to get up. The bougie is passed every three or four days, and, at the end of ten or fourteen days, the patient is taught how to use the instrument himself. When he is able to do this satisfactorily, he is discharged and attends as an out-patient, with instructions to use the catheter once a week. He is kept under observation for as long a period as he can be induced to attend.

We next have to inquire into the results of the operation as regards the condition of the stricture. Are the effects permanent, or are the symptoms likely to return? I believe that a permanent and radical cure will result, provided that the stricture have been sufficiently divided to allow the introduction of a full-sized instrument, and the patient has learnt the art of passing the bougie himself. Whenever circumstances permit, the surgeon should pass a steel instrument from time to time. If, in spite of these precautions, or as a consequence of neglect, the symptoms reappear, the operation can of course be repeated.

I operated last week upon a patient for whom I performed the same operation two years ago. The case was one of traumatic stricture, and the first operation was immediately successful, but the patient neglected the instructions given him; he never attempted to pass an instrument, and the stricture recurred.

A few words with regard to the use of anæsthetics when internal urethrotomy is performed. In the 206 cases referred to, ether was given in 52 instances, and chloroform in 3. Among the last 62 cases contained in the list, anæsthetics were found necessary in four cases only. The operation is by no means a very painful one, and the absence of an anæsthetic considerably lessens the risk to the patient. The cases for which anæsthetics are most needed are those in which the constricting portion is very dense, and the patients are of decidedly intemperate habits. Such patients bear pain badly; they nearly always struggle, and a comparatively simple operation is thus rendered somewhat dangerous. In any case, however, where there is likely to be anything more than the slightest resistance on the part of a patient, an anæsthetic should be given.

The possible accidents of the operation are few in number. Of the 206 cases referred to, hemorrhage occurred in 15. This, however, is readily controllable, if the operation have been performed upon the anterior portion of the canal, and it is at all times less likely to happen if, as I have recommended, the roof of the urethra be divided. Rigors and urethral fever are somewhat common; their occurrence was noticed in 61 cases. A few grains of quinine given immediately after the operation would appear to lessen the severity of this complication. Extravasation of urine has not occurred in any of my cases. Suppression of urine is the most formidable accident; in five cases it was incomplete or partial; in two it was complete, and fatal in its results. In one of these cases, on post mortem examination, the kidneys were found to be enlarged (nearly twice their normal weight) and congested, and to contain purulent fluid in their interiors. The ureters were dilated and full of pus; the bladder was inflamed and hypertrophied, and contained only a small quantity of dark purulent fluid. The record of the urine, as examined a week before the operation, states "urine 1016, acid, no albumen."

With regard to the circumstances which forbid the operation of internal urethrotomy, all I need say is, that it is contraindicated if severe renal mischief be shown to exist. I should hesitate to operate upon a patient with decided symptoms of pyelitis, or on one whose urine contained albumen and hyaline and granular casts.

There is no doubt that, in Sir Henry Thompson's hands, his method of operating has proved very satisfactory; but to use Civiale's instrument with safety and success requires a man who has had a large experience, and enjoyed very special opportunities. Even under those circumstances, there are, I maintain, several objections to the instrument and the operation. In the first place, I am not prepared to admit that all strictures, suitable for internal incision, can be sufficiently dilated to admit an urethrotome with a bulb of a diameter of No. 5 (English). As a matter of fact, strictures of traumatic origin and strictures attended with much induration cannot be sufficiently dilated. But the bulb of Civiale's urethrotome cannot be passed behind the stricture unless considerable dilatation is feasible. Teevan's instrument, on the other hand, can be passed through very tight narrow strictures. In the second place, having passed Civiale's instrument down the urethra, you cannot be quite sure as to where the instrument has really gone. It may, for example, be in a false passage. With this instrument of Mr. Teevan's, if urine flow when the stilet is withdrawn, you know that you are safe; and, in my opinion, no man should perform internal urethrotomy for the cure of stricture unless he have positive proof that the instrument he employs has passed through the stricture, and is in the bladder. The third objection to Civiale's instrument is, that with it the operator cannot tell where the incision is to stop. With Teevan's urethrotome, you know not only where your incision will begin, but also where it will end, *i.e.*, as soon as all the constricting tissue has been divided.

With regard also to certain other details of the operation, I think that the method I have just described is preferable to Sir Henry Thompson's. Thus I think it safer to make the incision along the roof of the urethra than along its floor. There is less bleeding, and less risk of extravasation of urine. I have indeed noticed bleeding only in those cases in which the incision was made in the floor of the urethra. I also prefer to operate without placing the patient under the influence of an anæsthetic. As I have said before, the pain is slight, the operation requires only a few seconds for its performance, and it is also well to avoid, when possible, even the slight risk involved in the use of ether or chloroform.

In the last place, I cannot regard the retention of a No. 12 or 13 gum elastic catheter for forty-eight hours after the operation as a necessary or safe practice. To say nothing of the discomfort to the patient, surely the risks of cystitis, rigors, and of urethral fever must be increased by the retention of the catheter. My practice is to empty the bladder after the operation; soms hours will then elapse before any amount of urine accumulates, and by that time the cut surface will be covered with a clot, and the patient will be able to pass his urine with comparatively little discomfort. This point, with regard to the non-retention of a catheter, was especially insisted on by Mr. Teevan in a paper he read before this Association a few years ago.

These, then, are the advantages which I claim for the one as compared with the other operation. My remarks are based upon my own experience and that of my colleagues, and I am tolerably confident that my future experience of this operation will tend to corroborate the views I have just expressed.—*British Medical Journal, Sept.* 20, 1884, *p.* 558.

62.—ON HABITUAL CATHETERISM.

By Sir HENRY THOMPSON, Bart., F.R.C.S., &c.

Our chief reliance for successful treatment in all the forms of impaired vesical function which give rise to retained urine, is the habitual use of the catheter; and I must add that the remedy is not only most valuable, but that it is, for the most part, indispensable, and the sooner it is employed in the great majority of cases, the greater is the chance of ultimate recovery, in addition to the immediate relief which the instrument affords. It is the frequent failure to perceive this fact, especially in relation with the less obvious forms of incompetence, which has led, as I said at the outset, to my choice of the subject. The failure is due not only to the oversight of the pathological condition which demands mechanical aid, but to the strong and very natural disinclination which so widely exists to the employment of instruments—I had almost added to the prejudice which is entertained against them—and I fear that this also must be admitted. I cannot resist the temptation to cite in support of this statement an illustration which occurs while writing these very lines, and with an opportuneness which is remarkable, being in itself so completely appropriate to the subject. A gentleman from abroad, aged 64, called on me yesterday for the first time, to consult me after two years of continuous troubles from frequency of micturition, mucopurulent urine, the inevitable "catarrh," as it is termed, for which during that time he had been treated, notwithstanding which he had been steadily getting worse throughout. My first inquiry, after hearing his story was, "Has a catheter ever been used?" The reply was, "No, indeed; my old friend and adviser (giving the name of a well-known foreign physician) has always said, 'Whatever you do, never permit a catheter to be used; it is a machine which will create for you a worse malady than that which you already have.'" Such is a type of the answers I am accustomed to receive from foreign patients, and occasionally from my own countrymen.

The first sentiment which arises in my mind, is astonishment that so grave a responsibility should be thus readily assumed by him who gives this counsel. Nevertheless, the frequency and the confidence with which it is tendered are very great, and I am bound to say that it has, within my personal knowledge, been the cause of many a premature and painful death; for when such advice is followed, the almost necessary, indeed the most common, result is that the patient, after much suffering and long endurance, becomes at last affected with complete retention of urine, for which a catheter must now be passed for the temporary mitigation of his tortures, and to prevent immediate or impending death. But the catheter is at this crisis not employed in any sense for the purpose of treating the original malady, as at first advised, and for which such relief has come too late, and ere long the patient sinks. The slender consolation at least remains, that at all events his last few days were rendered tranquil and comparatively painless by regular instrumental relief. Nevertheless, one almost invariably hears that the original adviser vaunts his foresight, and cites the catastrophe as a fresh warning against the catheter, which—as he asserts, almost indeed with an air of triumph, "was so soon followed by a fatal result."

Well, terribly unjust as this is, and hard as it is to bear, it must be avowed that the dangerous and unwarrantable aversion to the use of the instrument in many cases has not arisen without some sort of justification from experience in relation to catheterism, and this is the moral of my story, the facts of which are not exaggerated, and are such as I myself have, in varied form, but too often encountered. The surgical practice, at all events, which has preceded our time was not marked, in regard of the use of the catheter, by that gentleness and care, and by that choice of unirritating instruments, the value of which is now becoming recognised. The rigid metal catheters formerly adopted, together with the method of passing them, often studiously designed to exhibit the possession of rare dexterity, as indeed expressed by the very term, *tour de maitre*, used to denote it by the French—and mostly due to pretentious affectation—have in time past caused probably as much mischief as benefit to the subjects of it. These fashions have, to a great extent, passed away; but the popular traditions and the popular distrust of instruments will long remain. The rule for the student's guidance which I have long held to be imperative, and the importance of which I have reiterated, and now again repeat, may thus be stated.

The use of the catheter is in itself, to some extent, an evil; a very slight one if properly conducted, capable of becoming considerable in careless or unwise hands. A catheter is, therefore, only to be employed when the evil which is to be removed by its means may be regarded as more grave than that which is incurred by using the instrument; and such conditions as these are daily presented in practice. Let, then, every instrument employed be that which can be most easily passed, and is made of the least irritating material; always of course consistently with the efficient attainment of the object in view. Thus metallic or rigid instruments, as a rule, should only be used when those which are soft and flexible have failed; and for whatever purpose, they should not be larger than the needs of each case demand. By such gentle treatment a very considerable improvement in most cases is certainly attainable; and in the course of time the greatly exaggerated antipathy which widely exists to the use of instrumental treatment in the bladder will gradually but certainly disappear.

I have one more caution to utter in regard of habitual catheterism, for those elderly patients whose circumstances have been above referred to; which is of great importance. When the bladder has for a long period of time been over-distended—the patient's condition having been overlooked for months, or even for years, in consequence perhaps of catheterism having been forbidden—it is, at this advanced period of the case, a serious matter to resort to it. Rashly undertaken, great as is the relief at first experienced, symptoms of fever—"urinary fever," as it is, I think, properly termed—often appear in a few days; cytitis occurs, catheterism is required more frequently, the urine becomes highly purulent, the powers of life feeble, the tongue dry, nourishment is refused, and the patient sinks—usually in about three or four weeks from the first employment of the instrument. If a necropsy be made, almost invariably the ureters will be found dilated on one or both sides; one of the kidneys diminished in bulk, and wasted, the other enlarged, inflamed, and perhaps the seat of numerous deposits of pus.

It is said that such fatal histories following catheterism for long-continued distension of the bladder have occurred in individuals whose urinary organs, when examined after death, are found free from organic disease. Far be it from me to state that such a sequence of events is impossible; but it must be one of great rarity. No example has occurred within the range of my experience.

When a patient whose vesical functions have been long impaired requires artificial relief, the best chance of saving him is to enjoin at once the recumbent position in a warm and equable temperature, usually in his bedroom, in order that the skin may act freely, and that no locomotion may be possible. The catheter should be used skilfully and with great gentleness; not at first emptying the bladder completely, but always removing the instrument when pain is felt, as it often is before that condition is reached; and it must be applied again as soon as relief is manifestly required. I can scarcely over-estimate the value of these precautions, nor advise too strongly the abstinence from movement and exposure of all kinds for a period of a few weeks in these particular cases. We may thus sometimes succeed in prolonging life, even at a very advanced term, and at the same time avoid the groundless but injurious opposition which is often manifested, as we have seen, to the use of the catheter; the want of which at an early period in the patient's history, and not the late recourse to it, has been the real cause of death in almost every one of the fatal cases described.—*British Medical Journal, July* 5, 1884, *p.* 19.

63.—REMARKS ON CATHETERS AND SELF-CATHETERISM.

By J. B. Mitchell, M.D.

Catheters of mineralised india-rubber are the best for this purpose. These instruments, which are extremely flexible, require no skilled manipulation; being quite straight there is no point of increased friction; the eye is hollowed out and the edges so smoothed down as to give rise to no ruffling whatever; resisting much better than "gum," the action of oil or grease, india-rubber is less liable to become sticky. The rubber catheter is, therefore, a much safer instrument than any hitherto made when the mere passage of the catheter into the bladder, in normal cases demanding self-catheterism, is alone required. This is so distinctly the fact, that to propose any other instrument to a patient beginning catheterism would be very much like knowingly to increase the risk of accidents. Common prudence would seem to require the use, by preference, of the safest instrument, and that undoubtedly is the English india-rubber catheter.

Within the last twelve months there has been brought out a gum instrument which may be looked upon as an imitation, in boiled linseed oil, of the india-rubber catheter. It is straight throughout, and very nearly as pliable as that instrument. In many cases it will, perhaps, be found quite as good, but in two respects it certainly compares disadvantageously with the rubber catheter. The margin of the eye is not rounded off in such a way as to present no edge whatever to give rise to friction, while the material whereof it is composed, namely, prepared linseed oil, is very liable to deterioration from grease, and all the more so in the new gum catheter, that it is therein of a particularly soft and limp kind.

But rubber-like gum catheters, though to a very much less extent, are also acted upon by the greasy substances, such as olive oil, vaseline, &c., which are used for smearing when they are about to be used. Even when well washed with soap and water after use they soon deteriorate, becoming sticky with some increase of bulk. Unless, therefore, means were found for thoroughly freeing the india-rubber from the adherent grease, the practice of self-catheterism would, if pursued under the most favourable conditions, entail a very large consumption of catheters, seeing that the stickiness often sets in after but a few times of using. Indeed, it sets in from the very first, and increasing each time soon amounts to a dangerous defect. That it is gradual in its development only makes the danger the greater, because of the difficulty to distinguish the degree of deterioration, which may give rise to accidents. To be free of all danger there had to be discovered a method of entirely freeing from grease the catheter after each operation—of keeping it, in fact, in its pristine state, smooth, and free from stickiness.

In order to solve the problem, it seemed an important preliminary to make choice of an oil or grease which should not only be a good lubricant, but also fitted to be easily acted upon by some solvent incapable itself of attacking india-rubber. Castor oil, which has the reputation of being soluble in alcohol, readily suggested itself. On being tried, it proved a very superior lubricant, but when submitted to the action of ordinary alcohol, the result was far from satisfactory; that is to say, the oil was but very partially removed from the catheter. Absolute alcohol was capable of doing the work, but was found to be costly and not easily procurable. Sulphuric ether worked well in abstracting grease, but its high price and the large quantity lost by reason of its volatility were against it, as well as a certain tendency to attack the rubber.

After many experiments an extremely suitable alcoholic solvent was found in one of the empirical products of wood distillation which has the trade name of pyroxylic ether. This product picks up castor oil in a surprising manner. After exposure to its action for an hour or two in a tube an india-rubber catheter, smeared inside as well as outside with that oil, on being withdrawn and then dried, was found to be as clean and smooth as it was before use. Repeated again and again the experiment gave the same results. Many other trials have followed, clearly establishing that india-rubber catheters can be maintained in perfect condition, for an indefinite period, by means of this spirit bath.

The use of castor oil in the above manner was soon followed by recognition of the superiority of its anti-frictional properties.

Its peculiar consistence is alone sufficient to account for this superiority, the tenacity which results therefrom causing it to adhere better to the catheter, and thereby to be carried farther into the urethral passage than other lubricants. But that consistence also lent itself to the adoption of a means for securing a large measure of extra lubrication. When a certain quantity of castor oil was, by exhaustion at the superior orifice of the catheter, sucked into the tube of the instrument, it did not at once seek to escape, but kept its place till the constricted part of the urethra was reached. The catheter, with its internal as well as external charge of lubricant, having arrived at the point where resistance had to be overcome, pressure of a stripping character exerted between the finger and thumb, in a downward or inward direction, upon the extruding upper end of the instrument, by expelling the oil wherewith its opposite end was charged, flooded the urethra with lubricant at the constricted part, and bore along, as it were, the catheter point through the prostatic rapids, landing it safely in the bladder. Subsequent experience has abundantly shown that the flooding, when copious, is always completely effectual in the shooting of the urethral narrows.

Used with those precautions the English india-rubber catheter can hardly, under any circumstances, give rise to accidents in the hands of those who are obliged to operate upon themselves. When commenced under the auspices of a medical man, as is, and should be always, the case, self-catheterism, on the lines above set out, may certainly be had recourse to by even the most timid, without apprehension.

As has already been remarked, it is for the relief, or rather the prevention of the evils which prostatic hypertrophy, when not attended to, gives rise, that self-catheterism is chiefly required. The extensive prevalence of that ailment or infirmity among men past middle life is now well known.—*Medical Press and Circular, June* 25, 1884, *p.* 577.

64.—ON THE REMOVAL OF TUMOURS OF THE BLADDER.

By Sir Henry Thompson, Bart., F.R.C.S., &c.

In some cases, I have removed the entire growth; and, when unable to do so, have taken away as much of it as possible; pruning, so to speak, the most salient portions, when the growth was inseparable from the walls of the bladder—a condition met with in several cases. In all instances, however, I have been careful to examine the growth minutely with the finger before operating, so as to offer a diagram of its size and form, representing a sketch made at the time. I think, in general terms, it may be affirmed that a single tumour attached by a narrow pedicle to the wall of the bladder is not very common, and to say that it may occur once in six or seven cases of non-malignant tumour probably approaches a correct numerical estimate. On the other hand, sessile growths, of which the base is perhaps the widest part, are met with as frequently as the pedunculated form just described; and there are intermediate forms between the two; the preponderance in number, perhaps, being among the non-pedunculated class.

The earliest symptom is almost invariably hemorrhage. It is observed before unduly frequent micturition is complained of, and before it is painful. On the other hand, in most of the cases in which the tumour was of the malignant type or approached thereto, pain and frequency of passing urine generally preceded the appearance of blood, sometimes for a considerable period of time. In almost all cases, symptoms had been noted during at least three years before the patient applied to me; in some, as much as six or seven years. There appears to be nothing particularly characteristic in the nature of the hemorrhage excepting the one important circumstance always to be inquired for; namely, that in the act of micturition the stream may sometimes commence without any blood-stain, or with only a slight admixture, and end of a bright red colour from the presence of much fresh blood. With such an occurrence, and no recent urethral lesion having been made, the source of hemorrhage must always be vesical.

I should first say that very little positive evidence is obtained by rectal and vesical examinations in relation to any other growths than the hard cancerous deposits, which are usually easy enough to identify. The sound does not offer much information in examining the bladder, mostly meeting with slight obstruction to its free movement on either side, and with less defined a limit than is usually presented by healthy vesical walls; but nothing very definite.

The examination of the urine, however, is often highly significant. Its object is to obtain disintegrated portions of the tumour if present, and to identify their structure under the microscope. It may be necessary to examine several specimens in order to obtain indubitable evidence on this point. An excellent way of obtaining them is to wash out the bladder freely with warm water. It rarely happens that this fails to detach materials sufficient for our purpose; but when it does so I have succeeded by using an evacuating catheter of small size, connected with the aspirator employed in lithotrity, and have thus obtained specimens which were complete evidence of the presence of a growth.

We may now suppose that exploration in a suspected case has been made by external urethrotomy, and that the steps of the proceeding have been followed, as described in the preceding lecture; and, further, that the operator, on introducing his left index-finger, at once encountered a growth of some kind. He should first deliberately spend some two, three, or four minutes, if necessary, in ascertaining its size, situation, and general outline.

Pressing the abdomen firmly with his right hand into the pelvic basin, he soon ascertains whether the tumour be attached to the wall of the bladder by a narrowish pedicle, or whether it is rather an outgrowth which springs from a conderable area of the coats, and is inseparable from them. He traces the surface, which may be broadly mammilated, one or many lobed, or simply polypoid, firm in contour, or soft and fleecy. He learns whether it belongs more to the side or to the floor of the bladder, or whether it springs from the opposite surface farthest from the meatus, or from the upper aspect of the cavity. The mind soon forms a distinct image of the body to be dealt with, and simultaneously arrives at a judgment as to whether it be possible to remove it entirely or partially; and, if the latter, whether a sufficient portion can be safely taken away to warrant further surgical interference. If the tumour be polypoid in form, with a distinct pedicle, narrow, or even wide, there can be no doubt as to the propriety of operating. But if the growth admit of considerable portions being removed without injuring the vesical coats, which should be approached with great caution, then, also, my opinion is that such portions should be attacked, under the conditions hereafter to be named. When, on the other hand, the substance is hard, and exhibits no marked prominence of contour, characters usually found to be associated, no such attempt should be made; a small portion may be easily removed for microscopic examination, and that should be done.

But now comes an important consideration, which should be disposed of before any interference with the tumour takes place from the perineal opening.

The survey of the vesical cavity being complete, the operator has to determine the following question. Am I capable of completing my design of removing the tumour before me wholly or partially, as the case may be, through the incision made, or should I do so more efficiently through a suprapubic opening? For, it is granted that a case may occur in which the latter course may be preferable, and, if so, there is no reason whatever for not selecting it. The perineal incision made will not add to the risks of the case, and it has afforded that most important element, the means of obtaining an exact diagnosis.

We shall now consider the means which it is desirable to employ in order to remove the tumour, when, having examined it fully, we have decided to make an attempt through the perineal opening. First, if we have the good fortune to encounter a single growth, with a pedicle of no great width, it is only necessary to introduce a pair of forceps into the bladder, and employ them there without aid from the operator's finger. The forceps should have serrated margins, so as to crush, but without power to cut, the tissues seized. When the blades are free in the cavity, they have merely to be opened easily and widely, and, on closing them, it is almost certain that they will grasp the polypus more or less completely. But let it be observed that no suprapubic pressure should be made during this act; nothing should be done to interfere with the natural contour of the bladder. The operator, by light and easy movements of the forceps in varied directions, ascertains that he has the growth within their grasp. My advice is that, above all things, he is not now to pull forcibly, but that he is to press firmly the blades together, biting or chewing a little, if I may use the terms, without changing the original situation of the bite or grasp. Then a little twisting movement may help to disengage the mass, and if this be accomplished, the forceps may be withdrawn with their contents; after which the finger enters to feel what remains, and what more must be done in order to complete the removal. But, supposing that the tumour has not been separated by the moderate amount of forceps-action described, the operator should remove them; when, on introducing the finger, he will probably find the part so nearly severed that the actual division may be completed with the finger-nail; or with one of the little serrated instruments which I have designed for the purpose, and for the employment of which there is ample room through the urethral wound, by the side of the index-finger. There is no difficulty or risk, with ordinary care, in removing a growth of pedunculated form, sufficiently close to the walls of the bladder to render the operation a permanently successful one. I suppose that the ultimate result of dividing the pedicle of a tumour in the manner described is such a cicatrisation of the wound as to prevent the recurrence of outgrowth from that spot hereafter.

But other means may be used, according to the judgment of the surgeon. A very small *écraseur*, with violin-string ligature, may be manipulated by the side of the index-finger, and used in polypoid forms of tumour. In the cases of women, such a tumour may sometimes be slowly and carefully brought into view by traction on the forceps, and then the pedicle may be ligatured. I have succeeded in doing this in one case; so has Mr. Bryant. In another, I drew a polypoid mass within view, and found it was a completely encysted calculus; I then opened the mass, when the calculus escaped.

But when the growth takes a more complex form, and several rounded lobes spring from a wider base, the forceps must be depended upon for removing them by repetitions of the same process which is employed for the single growth. When the base is wider still, and the growth is less prominent, it is doubtful if complete extirpation is possible by any proceeding, whether through a perineal or through a suprapubic opening. The wide base involves such intimate continuity of tissue between the coats of the bladder and the structures of the growth, that I believe separation to be mostly impossible, and that ablation of the prominent portions of the growth, when feasible, should be undertaken only with the view of retarding its progress, but with no prospect of affecting complete separation of the disease from the body.

These portions are to be seized and destroyed on the plan described, partly by crushing, and thus inducing sphacelus in the growth. I am sure that the resulting cicatrisation powerfully checks reproduction in some circumstances. The question arises in such cases, of applying some chemical astringent, as a solution of the perchloride of iron, which may check the hemorrhage, which is mostly free, and may partially destroy the portion which remains after the forceps have done their work.

There is one circumstance important to be noted, especially in dealing with the less prominent growths; and that is, the effect of strong suprapubic pressure made by an assistant, in relation to their mode of presentation to the finger of the operator engaged in exploring the bladder, and in estimating their size and form. If that pressure be considerable, it forces the upper wall of the bladder into its own cavity, and thus makes them apparently salient to a greater extent than they really are. Thus an eager or inexperienced operator, unaware of the effect of suprapubic pressure, might be led to seize the mass thus offered to the forceps through the influence of this pressure, and, under the belief that it was a large growth, he might inflict a fatal wound by crushing a double fold of the coats of the bladder, and so making an opening in the peritoneum. To avoid such a catastrophe, it is only necessary, first, to decline the attempt to destroy any growth which is clearly not sufficiently salient to allow complete, or nearly complete, removal; and, secondly, never to employ the forceps while forcible suprapubic pressure is made; at least, to make no more pressure than is desirable just to steady and support the bladder and the parts adjacent.

[After reviewing the cases in which he has operated, the writer observes]:

To sum up. For every one of these cases of tumour, in the natural order of events, one result only was possible. Left without surgical aid, death inevitably awaited each; a fate not merely certain, but necessarily involving protracted suffering. Whatever surgery can accomplish in the way of saving life in many of these cases, is therefore so much clear gain. I am thus satisfied with the result of the first twenty cases. I could have heartily desired greater success; and I have reason to expect that it will be greater in the next twenty cases, as I have acquired experience valuable to myself, and which I have thus attempted, so far as in me lay, to make useful also to others.—*British Medical Journal, June* 28, 1884, *p.* 1239.

65.—ON LITHOTRITY AT A SINGLE SITTING.

By Sir HENRY THOMPSON, Bart., F.R.C.S., &c.

Five years of experience of lithotrity, completed at a single sitting, enables me to testify as fully concerning its capabilities, perhaps, as any other operator. It has been only partially tested at present on the Continent; entertained very cautiously at Paris; but received with gradually increasing favour at Vienna, where it is now the rule; but it is not in either place accepted for the largest calculi, and a cutting operation is preferred for those hard stones which weigh one ounce and a half and upwards in size. To this fact I shall hereafter refer in presenting an analysis of my own experience of the one-sitting operation, which I have adopted in the last two hundred cases, to use round numbers, consecutively treated by myself.

I propose, first, briefly to describe that proceeding which has appeared to me the most desirable in order to achieve successful lithotrity at a single sitting. We will commence by examining the instruments necessary for the operation, and then consider the method of employing them best adapted to effect our purpose.

In the first place, in respect of all instruments, we must recognise the importance of not inflicting any needless injury on the urethra and bladder, and should, therefore, always select the smallest lithotrites and evacuators which possess strength and capability adequate to crush and remove the individual calculus to be dealt with. And inasmuch as the great majority of calculi are small when first found by the surgeon, undue stretching of the natural calibre of the urethra is unnecessary for their removal, since no instrument need be used which exceeds the limit of that calibre. It is only when dealing with calculi of exceptional size, that instruments which distend the urethra to a considerable degree are to be employed.

Secondly, in dealing with a calculus of any size, but especially when large, it is important to employ instruments which are simple in construction and not easily liable to be deranged in action when employed in the bladder. The presence of *débris* in quantity, mixed with viscid mucus, perhaps with some coagulating blood, has to be reckoned on in circumstances which demand prolonged manipulation; and mechanical arrangements which work admirably in experiment with limpid fluids outside the bladder are not unlikely to fail when brought to the test of actual service. Simplicity in the construction of instruments is, therefore, to be attained if possible.

Let me suppose that the presence of a calculus has been determined by sounding in the bladder of an elderly adult male. It is almost certain that the note obtained and the resistance felt in making contact generally suffice also to convey an idea, approximately accurate, regarding the size and nature of the stone. As a rule, it is not so necessary now, as it formerly was, to make an exact diagnosis in relation to those particulars. When it was desirable to limit the application of lithotrity to calculi of, for instance, one inch and a half diameter, it was important to ascertain, by some easily managed method of measuring, what were their dimensions in every case. But now that the scope of lithotrity is considerably increased, all that is requisite to be learned is, whether the stone is an exceptionally large and hard one, and whether any unnatural narrowing of the canal is present; and both these points are almost sufficiently determined by an ordinary sounding in practised hands. At all events, it is unnecessary to make any further examination for the purpose of diagnosis, until the patient has been placed under the influence of an anæsthetic upon the operating table, the surgeon having full liberty to exercise his judgment and act as circumstances demand.

Invariably, as soon as the patient is thus prepared for operation, I pass a full-sized conical steel-plated sound, about No. 15 (English), in order to determine that most important point of urethral calibre before touching the stone. If the urethra is healthy—and of course in the very great majority of cases it is so—the instrument has passed with perfect ease, and may probably be followed by 16 or 17 in an elderly adult; by which term I mean a man of 60 years and upwards. I am sure the urethra is more capacious in such patients, than in those whose age is between thirty and fifty years. In these latter, the urethra often resents any active distensions, and the bladder also more readily becomes inflamed than in older patients. With an urethra admitting the easy passing of No. 16, almost anything is possible, and suffices for almost any calculus; but if I am dealing with one which weighs, in my judgment, about two ounces and more, I am glad to use larger sizes, and No. 18 I have never found it necessary to exceed. But if the stone be known to be small, No. 14 amply suffices, and there can be no reason for going beyond it. This is the size which was mostly used with the original instrument of Clover in 1866, and for all ordinary purposes answers admirably.

The lithotrite is next introduced. With small and medium-sized stones, a light instrument of the half-fenestrated pattern—that is, the lower portion of the male blade penetrating the female blade, which prevents the possibility of blocking by *débris*, while the upper portion is flat, and crushes the stone into small fragments—is, I think, the best. This mode of construction is applicable for a wide range of size in calculus, answering for any one of uric acid below about an inch and a half in length. To accomplish the first fracture of such an one, or to crush into fragments a larger calculus, a fully fenestrated lithotrite is better. There are some old forms of blade which have been in use for fifty years, which cannot, I think, be excelled; so numerous are the patterns which have been employed, that it is difficult now to imagine a new design.

To proceed: supposing that a considerable quantity of *débris* has been made, the calculus being large, it is advisable to withdraw the lithotrite, to introduce an evacuating sound, and attach the aspirator, so as to withdraw the *débris* already made before crushing more. When this is removed, the same or a lighter instrument may crush the fragments into *débris*, before again using the evacuator. By this time, probably, the remaining portion is not considerable, and another introduction of the lithotrite, followed by another aspiration, very likely empties the bladder. If, however, a fragment or two be heard and felt to strike the end of the evacuator, yet do not pass through it, they are probably just too large to issue, and require another crushing before the task is completed.

There is certainly now no difficulty in removing any last fragment from the bladder, the more powerful aspirators emptying the cavity so efficiently that no other instrument is necessary for the purpose; while by no sound is the last fragment found so well as by the evacuating catheter, against which contact of the fragment is certain to be felt or heard, through the action of the outrushing current of water.

In regard to aspirators, the original instrument of Clover, simple in the extreme, is a very good instrument, and requires only some modification to be as efficient as most of the modern ones. For my own aspirator, I have provided a tap with a funnel-shaped opening to the upper part of the India-rubber ball, by which to fill it, and to remove air accidentally introduced, which offers a decided advantage. Last year, I attached to the end of the evacuator in the interior of the glass receiver a light wire valve, which, while it admits any fragments to enter, renders their escape impossible; its action meantime being always visible to the operator. After the operation, the patient remains in bed, and rarely requires any special management, except sometimes that which a simple traumatic cystitis demands—namely, absolute rest in bed; occasionally the urine neutralised by potash; hot hip-baths, mild diet; and watchful care that chronic retention of urine do not occur, or be not permitted to continue unrelieved; avoiding, on the other hand, undue or unnecessary interference by means of catheters. But of all the agents for rapidly removing sub-acute or chronic cystitis after lithotrity, nothing equals mild injections of nitrate of silver, the effect of which is sometimes almost instantaneous. I use only half a grain of the salt in four ounces of warm water at first, gradually increasing to a solution three times that strength, beyond which it is rarely necessary to go. Usually, one application a day, sometimes two, will, in the course of three or four days, remove the painful symptom, and produce clear and healthy urine.

My own experience of the system of treating all calculi but the very largest, by a single sitting of lithotrity, dates from shortly before Christmas, 1878; the first example being a case which I saw with Sir Spencer Wells, who was present at the operation.

Since that time, I have adopted the system of completing the operation at a single sitting for every case in which lithotrity appeared to be possible, with two exceptions only.

The total is 211 cases of adults by the two operations, with 17 deaths, or 8 per cent. The mean age of these patients was over 60 years. And this is a result which hitherto has, I need hardly say, not been approached by any other mode of treating calculus in the adult. This subject, however, will be illustrated more fully in the succeeding lecture, when I shall present the results of my entire series, embracing upwards of 800 cases, by the two operations.

I have crushed several stones of uric acid, and one of oxalate of lime, considerably upwards of an ounce in weight. The largest uric acid calculus I removed at a single sitting weighed $2\frac{3}{4}$ ounces, and occupied me seventy minutes. The patient was seventy years of age, and made a capital recovery. I cannot speak too highly of the results thus attained. Indeed, nothing need be added to the figures I have adduced above, which exceeded any expectation I could have previously formed as to the success of operating on men upwards of sixty years of age, with stones of all sizes. In conclusion, I think we must admit that the operation of lithotrity at a single sitting bids fair to supersede lithotomy for the adult calculous patient, in all cases except those in which the stone is of rare and exceptional size. —*British Medical Journal, July* 12, 1884, *p.* 53.

66.—ON A RECENT IMPROVEMENT IN THE ASPIRATOR FOR LITHOTRITY.

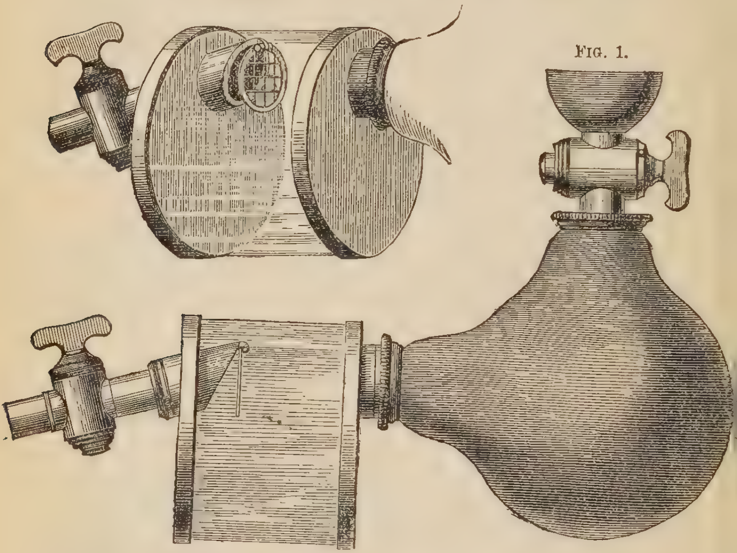
By Sir Henry Thompson, Bart., F.R.C.S., &c.

Last autumn I made an addition to my aspirator, which appears to be useful. It consists in a light, loosely-hanging valve of fine wire attached by a simple hinge to the end of the evacuating-tube. which terminates within the glass trap of the instrument. When pressure is made on the india-rubber globe, and the current flows by the evacuating-catheter into the bladder, this light valve is driven close to the aperture and no débris can leave the glass trap. When the pressure is removed, and the current returns from the bladder, the valve floats widely open, and permits the débris to enter unchecked. The wire valve is circular in form, and its border, being flat and thin, and about the tenth of an inch wide, is delicately sensitive to the movements of the current, and responds to the slightest impulse of the hand on the india-rubber globe. But I am quite satisfied that with my last published aspirator, as well as with the form now described, no débris returns to the bladder if the instrument is properly used, when of course the valve is unnecessary. Few persons are aware that very slight but quickly made pressure on the globe, sufficing to transmit only six or eight drachms of fluid into the bladder, generally removes more débris than a powerful impulse which transmits at one act all the fluid contents of the globe, or nearly so. When employed in the manner last-named, the valve becomes useful, and only then is it required.

As to the present instrument itself, the form is simple; not far removed from the original pattern of Clover, but with the useful addition of a funnel and stopcock at the upper part of the globe, to facilitate the act of filling with water, as well as the escape of air. Moreover, the glass trap is easily disengaged from the globe, by which means the valve, which is sometimes liable to be partially blocked, as when much mucus and fine débris are present, can be easily cleaned. At the same time, this blocking of the wire-grating of the valve in no way interferes with its competency in action. The entire instrument is shown by Fig. 1. It is necessary that the end of the evacuating tube within the glass trap should have the angular form represented, so that the lower end of the valve, when undisturbed by current, should not close the orifice, but hang

FIG. 2.

FIG. 1.



Aspirator with glass trap, the section of which is oval, with the long diameter vertical; the valve hanging in the position it assumes during operation, when the liquid is quiescent.

at a considerable distance therefrom, as seen in the figure. In Fig. 2 the glass trap is presented in a diagonal view, to show the construction of the valve, as described above.—*Lancet, April* 12, 1884, *p.* 653.

67.—ON STONE IN THE FEMALE BLADDER.

By GEORGE H. KIDD, M.D.Edin., President of the Obstetric Section of the Academy of Medicine, Ireland.

Stone in the bladder of women, though of rather infrequent occurrence, is met with sufficiently often to make it incumbent on the surgeon to sound the bladder in all cases where there may be anything in the symptoms indicative of vesical trouble. No doubt the bladder is constantly affected sympathetically in cases of disease of the urethra, vagina, uterus, kidneys, and rectum, and their surrounding parts; but sounding the female bladder is easily done, occupies but a few seconds, causes little or no pain, and leaves no injurious results. If no stone be found, attention can then be directed more definitely to other organs; and if one be found, the true nature of the case is at once established. The ordinary uterine sound suits perfectly for exploring the female bladder. It can be used during a vaginal examination—the patient lying on the side, in the usual obstetric position—without creating any alarm, or indeed anything being said on the subject. In doubtful cases, where no stone is detected, and the symptoms still tend to the suspicion that there may be one present, it is well to place the patient on her back, and if the bladder be empty inject water into it, and again pass the sound, but this is rarely necessary.

There are two methods of removing a stone from the female bladder—through the urethra, or through an opening made in the base of the bladder from the vagina. Many modern surgeons prefer the method by incision—Marion Sims and Emmet have both recommended it. The success that has in modern times attended operations for vesico-vaginal fistula has had much influence in deciding surgeons to adopt this method, along with the apprehension of incontinence of urine as a consequence of dilatation of the urethra. Two forms of lithotomy have been recommended—1st, through the vesico-vaginal septum; 2nd, through the urethra, laying it open for about 1½ inches behind the meatus, and running the incision, if the size of the stone require it, into the bladder. The first is certainly the better of these operations. The sphincter should never be touched if it can by any possibility be avoided. Emmet specially recommends incision through the vesico-vaginal septum where there is chronic cystitis to any extent. In such cases he directs that the opening should not be closed after the stone has been extracted, but left to form a fistula, so as to leave the bladder at rest till the mucous membrane recovers its healthy condition. The success of the method of treating chronic cystitis by the establishment of a fistula lends much weight to this recommendation in aggravated cases of cystitis, but, as a rule, the lining membrane of the bladder gets into a healthy condition very rapidly after the stone has been removed, and the establishment of a fistula is very rarely necessary.

Dilatation of the urethra is the oldest method of removing calculi from the female bladder. It is objected to because of the risk of incontinence of urine, but as practised of late the risk of this is really very little. I have dilated the urethra very frequently, and am not at all sure that in any case permanent incontinence followed in consequence.

All modern surgeons who operate by the urethra prefer rapid dilatation without incision. This may be done with Weiss' instrument or with the finger, the patient being under the influence of an anæsthetic. Weiss' instrument may be passed into the bladder and dilated rapidly, but the edges of the arms are liable, when expanded, to cut the mucous membrane.

To obviate this Mr. Bryant covers them with india-rubber, but dilatation with the finger, as recommended by Mr. Christopher Heath, has always appeared to me a safer and better operation. The patient, being brought under the influence of an anæsthetic, is placed in the lithotomy position, and the hands and feet tied together. Then, according to Mr. Heath, a director is passed into the bladder. I prefer a probe, believing the edges of a grooved director are liable to cut the mucous membrane. The finger is then gradually passed into the bladder by a semi-rotatory motion, the probe or director being used as a guide, so as to avoid making a false passage. A large-sized bougie may be passed first, then the little finger, and afterwards the index finger.

A few minutes will suffice to do this. The size and character of the stone may now be ascertained. If it be not very large, the lithotomy forceps may be passed in, the stone seized, and withdrawn, its position having been fixed by the finger, so that it could be seized in its shortest diameter. If the stone be too large, then it must be broken down, and for this purpose the crusher devised by Mr. Erichsen for breaking the stone after lithotomy in the male, or an instrument of that description, answers better than the lithotrite. It can be passed in the same way as the forceps, the position of the stone having been clearly ascertained by the finger, and the stone seized and broken. If necessary, a finger in the vagina will aid in the seizing of it. If the stone consist of triple phosphates, as large stones usually do, it will break down with great ease. Whether a mulberry calculus could be broken in this way, I cannot say; but they are seldom so large as to require to be broken. After breaking the stone and removing all the fragments with the forceps and the finger, the bladder should be washed out, which may be done with an ordinary catheter and syringe.—*Dublin Journal of Medical Science, Sept.*, 1884, *p.* 197.

68.—ON CYSTITIS IN FEMALES.

By William Gardner, M.D., Professor of Gynæcology, McGill University; Physician to the Montreal Dispensary for Women.

The subject of this lecture is, if judged by its frequency and the amount of distress it causes the unfortunate sufferer, one of the most important that can engage our attention. You will meet with it in a great variety of circumstances, and unless you are forewarned, you may, perhaps, diagnose the disease when it is not actually present.

While in some respects the disease resembles cystitis in our own sex, it differs from it in many others. These differences refer mainly to the causation, as influenced by that important adjacent organ, the uterus, with its remarkable functions and the many diseases to which it is subject.

I purpose to consider it in some of its more practical aspects as it presents itself to the practitioner. It is divided into *acute* and *chronic*. It may affect each or all of the coats of the bladder, and so be of the *mucosa*, of the peritoneal investment, or of the muscular coat. But these are often steps in a general process, the disease beginning in the *mucosa* and extending to the other coats, and this is the most frequent order, or beginning in the serous coat, as an epicystitis or pericystitis, and extending inwards to the mucous coat, which is much rarer. The causes are many. Injuries from blows, falls, coitus, sudden displacement of the uterus, fracture of pelvic bones, pressure of the child's head during labor, over distension of the organ after labor or under other circumstances, rough catheterization or frequently repeated gentle use of the catheter, introduction of foreign bodies as practised by masturbating and hysterical women, abnormal urine, and extension of inflammation from adjacent organs, as of gonorrhœal or simple vaginitis or vulvitis, or from the peritoneal surface. A little more extended consideration of some of these causes will be profitable. The pregnant, parturient, and recently-delivered woman, in whom the parts are in a condition of physiological activity and of increased vascularity, or have undergone contusion from pressure, or are paralyzed, and so liable to over-distension, is especially prone to cystitis. Hence the great frequency of the disease under such circumstances, and its unusual difficulty of cure. Of catheterization, it must be said that it is always a source of irritation, however gently performed. How much more so must it be if done roughly, and if the necessity be frequent. But there is another source of danger in the use of unclean catheters. Winckel has said that the mucous membrane of the bladder is the most sensitive in the body, to sepsis. These facts convey to you self-evident and important cautions.

Abnormal urine is most important in its effects in causing inflammation of the mucous coat of the bladder. Probably, however, it is not so powerful if the mucous coat be healthy. Congestion, as from over-distension, furnishes a sufficient predisposition. Women frequently suffer from over-distension of the bladder in conditions other than puerperal. "The Relation which Faulty Closet Accommodation bears to the Diseases of Women" is the title of a lecture, on a somewhat unsavoury subject, by the eloquent Goodell of Philadelphia. For such reasons and others, women often delay emptying the bladder for a long time after there is a safe amount of distension. Many cases of cystitis are thus set up in the sex. Now let us see how such a cause may act. Over-distension of the bladder means congestion. Over-distension leads to deficient power to expel the last drops of a urine which, from the congestion, contains mucus. The mucus decomposes. It sets up decomposition of the urea, and carbonate of ammonia is produced. This renders the urine alkaline, and therefore foreign and irritant to the coat of the bladder. Another result of alkaline urine is the precipitation of the earthy and triple phosphates, and so inflammation is set up.

The symptoms of cystitis are well marked. Frequent and painful micturition, accompanied with tenesmus of the bladder. The pain, at first local—pelvic and perineal—radiates to the navel or the breast and loins. The urine, at first pale, of low specific gravity, and acid, becomes alkaline and turbid from blood, mucus, pus and precipitation of phosphates. The disease is not always confined to the bladder. It may extend up the ureters to the kidneys, and so ureteritis, pyelitis, pyonephrosis and renal abscess result. In the bladder itself, a cystitis, at first merely catarrhal, may become ulcerative, or the inflammation may be diphtheritic or gangrenous.

The diagnosis is usually easy, but it cannot be made from the symptom of frequent and painful micturition. The urine must contain mucus, blood or pus. The conditions with which it may be confounded are irritation of the bladder from uterine displacement; irritation or inflammation, with cicatrization of the uterosacral ligaments, other forms of pelvic peritonitis, fissure at the neck of the bladder, urethritis, and stone in the bladder. As regards most of these, it may be said that to be forewarned is to be forearmed.

The prognosis is much better than it would have been twenty years ago. In healthy subjects it is good. In the pregnant or lying-in woman, it is not so favourable. It is in such more apt to become chronic, and to leave the part weakened and sensitive. When ulceration is present, the outlook is by no means so favourable, although not absolutely bad. The tendency to hemorrhage, to extension to the peritoneum, to perforation, to extension to the kidney, to blood-poisoning, constitute many avenues to a fatal result which sometimes comes to the patient when it is not expected.

The treatment, being suitable, ought to be early and prompt, to prevent the disease becoming chronic. When this stage has been reached, it will require the exercise of much of your own patience, as well as that of the sufferer. In the acute stages, keep her at rest in bed, keep the skin acting, and also the bowels, by the use of saline laxatives or mineral waters, aided, if necessary, by cold water enemata. Indigestion must be removed, and a free portal circulation maintained. An important indication is to render the urine as bland and unirritating as possible. A diet of large quantities of skim-milk, diluted, in cases where the urine is very acid, with some natural alkaline water, as Vichy or Apollinaris. Linseed tea and the decoction of triticum ripens in large quantities act as diluents to the urine, and perhaps as something more, especially in the case of the latter. A good prescription in the early stages is a combination of citrate or bicarbonate of potash with infusion of buchu. From Sydney Ringer's prescription of drop-doses hourly of tinct. of cantharides I have had no good results, and cannot therefore recommend it. Leeches to the anterior vaginal wall, and poultices of linseed meal and tincture of opium to the hypogastrium, are often of undoubted value. To relieve the severe pain and distressing tenesmus, you will be obliged to give sedatives and narcotics, but I must caution you to withhold the most powerful of these, the opiates, as long as possible. They undoubtedly relieve pain, but they also derange digestion and act injuriously in other ways. By mouth, the Dover's powder is the least injurious. The rectal suppository is probably the most efficacious form for the administration of morphia or other remedies. Other remedies are, however, to be first tried. Camphor is useful. The bromide of potassium sometimes acts best. It must be given in full doses—20 grains every four hours. Skene speaks well of hydrobromic acid. It may be given in doses of two to four fluid drachms of the dilute acid, well diluted with water. Marked alkalinity of the urine furnishes an indication not very easily met. The only acid useful for this purpose is the benzoic; the dose is 10 grains. A small dose, say 5 grains, of borax should be added to render the benzoic acid soluble. The combined dose may be given in infusion of buchu. In the later stages of this, as of other mucous inflammations, balsamic remedies sometimes do good. Balsam of Peru and of Copaiba, and oil of turpentine, are the most useful. In cases where there is markedly fœtid urine, salicylate of soda has been highly commended. But the time soon comes, in cases at all severe, at which local applications to the vesical mucous membrane must be used, if we are to do the best for our patients. The simple washing out of the bladder is often of the greatest value; but the method of this simple operation is of the utmost consequence. If done carefully, so that the coats of the bladder suffer no mechanical violence, much good may be effected; otherwise it may be most injurious. As a rule, the piston or bulb syringe must be avoided. Use, then. a fountain syringe. The most convenient form is a small-sized glass funnel, with two feet of rubber-tubing attached, the other end of the tubing being slipped over the open end of a No. 8 gum-elastic catheter. Violent contact of the coats of the bladder as it contracts with the end of the catheter is often most hurtful. To obviate this, the catheter must be made to barely enter the cavity. To attain this, especially when the patient or her attendant (as must often be the case) administers the injection, slip over the catheter a guard, which may be a piece of thin. flat wood or gutta-percha perforated, leaving only 2½ or 3 inches of the catheter from its point. The guard rests against the vulva and prevents the catheter penetrating more than is necessary to just enter the cavity. With such a simple, cheap apparatus, which any one can prepare in a few minutes, every object may be obtained in the majority of cases. Gravity is the injecting force. It is even, not jerky, and may be as gentle as desired, according to the height of the funnel. The patient being placed on her back, with the knees drawn up, the catheter is inserted, and without removing it, the bladder may thus be thoroughly washed out, and the cleansing fluid having been allowed to flow out, the medicated solution is run in. To avoid irritation from over-distension, no more than, at most, two fluid ounces ought to be injected at once. This is a point on which Sir Henry Thompson is most emphatic in his instructions for injecting the male bladder. It is equally important in the female. Next, some instructions as to the solutions you are to use. For mere washing-out purposes, solutions of common salt or of potassium chlorate are best—ʒ i to the pint. These solutions are less irritating than plain water. Carbolic acid, 1 to 60, is also valuable. Then there are various astringents which sometimes are beneficial. Such are acetate of lead, sulphate of zinc, and tannic acid, one or two grs. to the ounce. Of this class of remedies I have reserved for last that which, in my opinion, is the most valuable—the nitrate of silver. You will find, by most writers, solutions of 1 to 2 grs. to the ounce recommended. This is far less valuable than a much stronger solution, 30 or 40 grs. to the ounce, of which I have had some recent very satisfactory experience. Such a solution causes severe pain and vesical tenesmus for a few minutes, and it is well to be prepared with your hypodermic syringe when administering it, which usually must be at the patient's own home. Confinement to bed for a day after is advisable. I may here mention a case I recently saw. The symptoms were of several years' duration, and came on after confinement. During nearly a year I had tried a variety of astringents, with only slight benefit, but my attention was directed, during the winter, to the stronger solutions of silver nitrate by an article in the Philadelphia Med. News. I resolved to try the remedy. The results were most satisfactory. After two applications, the patient expressed herself as being better than for eight years. In this strength, the remedy ought not to be used oftener than once a week. Morphia has been injected to relieve severe pain. Solutions of 1 to 2 grs. to the ounce may be employed.

The value of rest, so well recognised in the treatment of surgical cases, and of medical cases, too, is no less in inflammations of the bladder than other inflammations. It is the difficulty of attaining this which renders cystitis hard to cure. In some cases, especially when the urethra is not involved, this may be attained by placing a catheter in the bladder, and allowing it to remain there constantly, removing it twice daily only for the purpose of cleansing it. This is to be done by forcing a stream of carbolized water through it. When a catheter can be thus tolerated, it will be of great value. Dr. John Goodman, of Louisville, published a paper in the American Journal of Obstetrics for 1874, in which he reported a series of cases in which the method proved most valuable. He used a short catheter with a bulbous extremity, which secures its retention within the bladder. The other end is provided with a flange, which prevents it slipping in. A piece of rubber tubing attached to the outer end conveys the urine to some convenient receptacle. I show you Skene's modification of the Goodman catheter. Another means of securing rest is by an operation which has been done rather frequently in recent years. I mean rapid dilatation of the urethra. I reported a case of severe chronic cystitis cured by this operation, in this journal in February, 1881. I had, however, a subsequent failure, but the case was a much worse one. At that time I did not know the value of the strong solutions of nitrate of silver, or probably I should not have done the operation, which has been followed in many cases by the deplorable result of permanent incontinence of the urine.

Lastly, and, as I believe, the most valuable resource of all for securing complete rest of the bladder, an artificial vesico-vaginal fistula may be formed. This operation was first done by the late Dr. Willard Parker of New York for the purpose of drainage of the bladder, in a man. Dr. Emmet of New York justly claims priority in the performance of the operation for the cure of chronic cystitis in women. By it the bladder is placed completely at rest for the requisite length of time, and an opening afforded for the application of medicated fluids to the lining membrane. It is true that the patient becomes a sufferer from a distressing infirmity, but one involving much less suffering than the condition for which it was inflicted, and perfectly curable by subsequent operation. If it be further remembered that it is the only mode of treatment which affords a chance of life to the sufferer from a disease which so often leads to death from extension to the kidney or otherwise, its justification must be complete.—*Canada Medical and Surgical Journal, June*, 1884, *p.* 641.

69.—ON A CASE WHERE A SCIRRHOUS CARCINOMA OF THE PROSTATE WAS REMOVED.

By Reginald Harrison, F.R.C.S., Surgeon to the Liverpool Royal Infirmary.

About twelve months ago I brought under your notice two specimens of large adenomas of the prostate which had been successfully removed in the course of operations for lateral lithotomy. Both of the patients now remain perfectly well, and have shown no signs either of a recurrence of the prostatic growths or a re-formation of calculi. One of these cases was at the period referred to under my care in the infirmary, when you had the opportunity of watching what was done for the patient. I have since learnt from his medical attendant, Dr. Samuels of this city, that he has continued to enjoy good health. The other case occurred in the practice of Mr. Bickersteth, who kindly allowed me to show the tumour removed, which will be found in our museum. Four years after this operation Mr. Bickersteth knew that the patient was in the enjoyment of perfect health. The size of the tumours in these cases and the process of enucleation which was employed in their removal distinguished them, in my opinion, from the majority of instances where portions of hypertrophied prostate have been accidentally detached in the course of operation for stone, or have come away between the blades of the forceps. So important did I consider these cases, in conjunction with others that may be found scattered through surgical records, that I then ventured to draw the following conclusions :—

1. That in some cases of enlargement of the prostate attended with pressing symptoms of distress otherwise irremediable, it might be expedient to practise digital exploration of the gland, such as the operations as for lithotomy permitted. 2. That this proceeding might permit of the safe removal of the whole or a portion of the growths with such advantage to the patients as was illustrated in the cases that I brought forward. 3. That the operation of exploration, even if it did not permit of the removal of the growth, would relieve the patient's symptoms so far as micturition was concerned. Mr. Lund's important case of prostatotomy furnished a good illustration of this.

In continuation of this subject I will proceed to narrate the particulars of the case I am bringing under your notice to-day.

J. B——, aged sixty-four, came under my observation in August, 1882. His chief symptoms related to hæmaturia and frequency in micturition. The patient had up to nine months previously enjoyed good health. There was no history either of syphilis or tubercle. Two months ago he noticed that his left testicle became swollen. This was strapped, when the swelling passed to the right one, which was considerably enlarged on his admission to the infirmary. On exploration by the rectum the prostate was found somewhat enlarged, indurated, and nodulated. On examination with a sound some obstruction was revealed in the prostatic urethra, but neither stone nor roughness within the bladder could be detected. He passed urine every two hours or oftener both by day and night, and the urine was largely mixed with blood. Nothing like a villous structure could be detected after careful examination with the microscope of some shreds contained in the urine. The right testicle was somewhat enlarged but uniformly so. No granular enlargement could be detected. All kinds of treatment were tried; but though matico diminished the quantity of blood in the urine, yet the extreme irritability continued, under which the patient's health was rapidly giving way. Under these circumstances I determined to explore the prostate and neck of the bladder with the finger. On October 25th I opened the membranous urethra as for the median operation for stone. On exploring the prostate I found a solid mass projecting into the urethra and occupying the neck of the bladder. This, with some little trouble and with the assistance of Mr. Rushton Parker, I succeeded in enucleating tolerably completely, though a hard cord-like band in the roof of the prostatic urethra was only imperfectly scraped away with the finger. The mass removed was about the size of the last phalanx of my thumb, and was evidently a new and rare growth. The exploration of the bladder was not as complete as I could have wished, notwithstanding the viscus was well pushed down towards my finger from above the pubes. The removal of the tumour was not attended with any serious hemorrhage, it not being necessary to tie a vessel. The patient suffered very little from the operation. As the urine now passed entirely through the wound, the patient was enabled to enjoy what he had not had for many months—namely, uninterrupted sleep. On the third day after the operation the urine was clear from blood and remained so for ten days, when it again returned in a small quantity, and finally disappeared. On Dec. 1st the patient was able to leave the infirmary, the perineal wound having almost entirely healed; he had not complete control over his bladder.

Jan. 8th, 1883: The patient is in much the same condition, but he is able to retain his urine for about half an hour. He was measured by Mr. Reynolds, the surgical instrument maker, for a urinary truss, made after Mr. Harrison's directions, with the view of providing against the incontinence.—12th: The patient was fitted with the truss yesterday afternoon. It consists of an ordinary leather-covered truss-spring, terminating in an ivory ring, well padded. through which the penis is passed, the object being to exercise steady pressure on the urethra immediately below the arch of the pubes. It was found that this apparatus completely restrained the escape of urine and enabled the patient to get about his business with comfort.

This patient lived comfortably for fourteen months after the operation. He had no recurrence of the hemorrhage, and partially resumed his occupation as a stevedore; then the glands in his left groin began to enlarge extensively, and in two months more he died.

The piece of tumour hardened for microscopical examination was the size of a small filbert, and was rather less than one-half of the whole bulk of what was removed. It was softer and more fleshy in appearance than normal prostate, and was plainly to the naked eye a new growth. Microscopically, the portion examined consists of prostatic tissue, infiltrated with carcinoma, except along one margin, where the normal prostatic structure is unaltered. The growth is spreading both by direct extension along the gland tubes, and as a cellular infiltration of the stroma.

Such, gentlemen, are the chief features, clinical and histological, of a case of more than usual interest and rarity. Though the operation which was performed may not have cured the patient, it has been the means of prolonging life, and rendering its continuation less distressing than it previously was. That the growth was of a rare kind must be evident to all who have any acquaintance with the enlargements of tumours to which the prostate is liable. That the proceeding adopted was the only means of affording relief I have not the least doubt, nor was the risk incurred a great one to run. On more than one occasion I have opened from the perineum the bladders of persons suffering from malignant disease with considerable benefit. No condition can be more distressing than that of malignancy associated with difficult micturition, hemorrhage into the bladder, and the constant catheterism that these entail. If my incision in the case brought under your notice to-day had only temporarily relieved these symptoms, the continuance of which could only have brought about a speedy termination, without permitting the removal of the growth, even then something would have been gained by it. The means successfully employed for providing against the incontinence which resulted is also worthy of your attention, as the principle might be extended to other circumstances. I have often noticed how slight a pressure applied over the urethra at the root of the penis will effectually stop micturition. The application of this principle by a truss suggested itself to me as being a likely, if not an entirely novel, means of affording the remedy that was desired.—*Lancet, Sept.* 20, 1884, *p.* 483.

70.—REMARKS ON VARICOCELE AND ITS TREATMENT.

By T. G. Roddick, M.D., Prof. of Clinical Surgery, McGill University; Surgeon to the Montreal General Hospital.

The mental condition of many of those suffering from varicocele is peculiar. Its presence has often a most depressing influence, and I know few affections in which the attention of the person is so concentrated upon his malady as in this. The constant weight in the scrotum, and the perpetual aching pain up the cord, into the groin and down the thigh, tends to direct his thoughts to his ailment, and his life is in consequence often rendered miserable. Howe relates a case where he operated on a man whose mind was rapidly giving way under the morbid influence induced by the presence of a varicocele. In twenty months after the operation he was quite well and able to follow his usual occupation. "Here," he says, "we have evidence of great good having been done, for not only has the varicocele been cured, but a mental state bordering on insanity has been checked, if not entirely got rid of."

It must be remembered, also, that the necessity for operation does not depend so much on the size of the varicocele as on the symptoms it produces. Thus in varicoceles of large size, the pain and discomfort are sometimes very slight; whilst in others, comparatively small and insignificant, the distress is often very great. A patient, otherwise healthy, and about 40 years of age, consulted me two years since for varicocele. The varix was well marked, although not by any means of very great size, but the neuralgic-like pain from which the man suffered was almost unbearable. He was free from pain only when in the recumbent position. I prescribed all the ordinary antineuralgic remedies, both internally and externally, and secured for him a well-adjusted suspensory bandage. He was relieved for a time, but subsequently lapsed into his former condition.

Now, as to the *treatment* of varicocele, I am decidedly of the opinion that any or all of the palliative measures usually recommended should have a faithful trial, namely, cold bathing, the suspensory bandage, the truss, Wormald's silver ring, marriage, &c., but if these fail to remove the trouble, and the symptoms continue after a year or two, I do not hesitate to perform one or other of the following operations:—

The first is the least formidable of the two, and requires only an ordinary amount of skill for its performance. It is, in fact, Ricord's operation, with one or two trifling modifications. This operation, as you are aware, consists in the introduction, in opposite directions, of two loops of wire—one between the vas deferens and the veins, and the other between the veins and scrotum—the free ends being passed through the loops, so that when drawn taut, the latter completely encircle the veins and constrict them. The books recommend us to keep up the pressure on the veins by tightening the wires from day to day over a piece of cardboard or a pledget of lint. This, however, will be found to annoy the patient, and from frequent twisting the wire will sometimes break. I prefer, therefore, to attach a piece of rubber tubing to the wires on either side and pass this round the body. In this way the pressure on the veins is made more equable and constant, and the parts need not be disturbed for days together. In one or two of my earlier cases I experienced great difficulty in removing the wires after the lapse of ten or twelve days, and on one occasion was obliged to break the wire in order to extract it. Of late, however, I have practised a little device which completely obviates the difficulty mentioned. This consists in attaching to the loop of each wire a short loop of the same material, by pulling on which at any time the main wires can be separated. I was surprised to find that, in looking up the literature of varicocele the other day, that Mr. Tufnell of Dublin suggested this slight, but not unimportant, modification of Ricord's operation over twenty years ago, although I have not seen it referred to in any work on systematic surgery. An anæsthetic is seldom required for this operation, although, in the case of a delicate, nervous person, it may be well to give ether, the scrotum being made dependent by bringing the patient's hips well over the edge of a table. Where an anæsthetic is not used, however, the best is the standing position. The time required for the division of the veins or their complete closure varies from ten to fourteen days, depending on the age of the patient and the size of the varicocele. I may say that I have performed this operation now seven times, with one failure. In none of the cases was a single unfavourable symptom noticeable.

The other operation is a more formidable one, although not by any means difficult. It is one of the outcomes of Lister's teaching, and is not justifiable unless performed with the strictest antiseptic precautions, including the spray. It consists in making an incision about an inch and a half in length directly over the varicocele, and commencing about half an inch below the external abdominal ring. The veins are then carefully separated from the vas deferens by means of the fingers, ligatured with catgut above and below, and divided by scissors between the ligatures. A small drain, either of rubber or catgut, is placed in the wound, and two or three sutures applied. The parts should then be carefully enveloped in the gauze dressing, care being taken to prevent the urine from contaminating the wound. An anæsthetic should be given, the patient's hips being brought over the edge of the table, and slight pressure applied over the external abdominal ring.

I have here the notes of three cases on whom I performed this operation in the winter of 1882-3, but will not take up your time with the details. I had an opportunity of examining two of these cases some months after operation, and was pleased to find no trace of the varicocele, and there were none of the original symptoms present. For a month or more after the operation the patient should wear a suspensory bandage.—*Canada Medical and Surgical Journal, June*, 1884, *p.* 648.

DISEASES OF THE SKIN, ETC.

71.—ON THE TREATMENT OF ADHERENT ULCERS.

By JAMES HARDIE, M.D.Edin., F.R.C.S.,Eng., Surgeon to the Manchester Royal Infirmary.

The case to which I invite your attention is one which you may at first look upon as of a very commonplace and uninteresting nature. You see that the man has an ulcer on the outer side of his leg, about three inches in length and two in breadth; and if I were to ask any of you to classify this ulcer, you would probably say it is an indolent one, and would, with a fair amount of reason, point to the usual characters of such an ulcer as justifying your diagnosis. Probably, also, if I were to ask you how you would treat it, you might say that you would trust principally to rest in bed and to strapping; and probably you wold expect by some such means to effect at least a temporary cure. Now, your interest in the case will no doubt be awakened when I tell you that I scarcely think that any of you, with your present information, could succeed in healing this ulcer. I scarcely think, either, although I quite admit the diagnosis to be justifiable, that, were you to describe it simply as "indolent," you would then have present in your minds its main characteristic, or realise that peculiarity which would cause it to be so difficult to heal. If you examine the ulcer carefully, you will find it scarcely fulfils the conditions of a well-marked indolent or callous ulcer. The edges are elevated, it is true, but they can scarcely be called indurated, There is an abrupt line of separation of the surrounding skin, which is soft and free from inflammatory swelling, from the edge of the ulcer. The edges are irregular in outline. The surface of the ulcer itself is of a fairly florid colour, not quite destitute of attempts at granulating, and it is sparsely covered with bright-red specks. The discharge is somewhat purulent. Above all, the base is not simply hard, unyielding, but it feels tense to the finger pressed on it, and slightly resilient. The patient tells us that this condition of matters has existed for about ten months. So little change has taken place in that time, that he cannot say that there has been any. Three months earlier he had the skin abraded; the part inflamed a good deal, and an ulcer then formed, considerably larger than the present dimensions; this healed satisfactorily for a time, and then the healing came to a standstill. I have not the slightest doubt that if this man were to continue to follow his employment instead of coming to hospital, the sore would in time develop into a good old-fashioned callous ulcer. The projecting irregularities of the edges would disappear, the base and the surrounding skin would become indurated, and there would be more or less general swelling for some distance around. The surface, too, would become pale and smooth; the discharge almost serous.

At the present time, however, I am struck with the condition of the base. It is herein that the interest of the case lies, for I believe that it not only explains the arrest of the healing process, but gives us a clue to successful treatment. I have said that it is hard, tense, and slightly resilient. Now, what does this signify? It is not the normal condition of the tissues, but as every one of you ought to know, it signifies a deposit of plastic lymph in the tissues; and so, in the absence of any history, you would have no difficulty in coming to the conclusion that, at one time or another, the part has been the seat of an inflammatory process. You can at once appreciate what would be likely to happen in such a case. The loose cellular tissue on which the wound was situated became infiltrated with more or less plastic lymph, extending to a greater or less depth. Probably in this case it has extended down to the superficial fascia. Possibly in another case this structure might be partly destroyed by the inflammatory process, and the exudation might infiltrate the parts down to the muscular aponeurosis. In process of time this plastic material undergoes the changes usually incidental to it: it becomes less soft, more organised, dries up, and, in short, is converted into dense cicatricial tissue, almost as dense as cartilage and almost as destitute of vessels. Thus the ulcer becomes incorporated with and adherent to the subjacent fascia, and thus its base becomes converted into a tissue with no adaptability for carrying on the processes essential to healing. All such ulcers have a strong tendency to present, in process of time, the characters of "indolence," more especially as regards the appearance of their surface. If large, the granulations will almost certainly dwindle down to nothing. Nevertheless, you will sometimes find this character of adherence to the deeper parts in an extremely well-marked degree, while, at the same time, the edges are curled in and the immediately adjacent skin perfectly soft and pliant. You will also sometimes find the granulations tall and flabby, and sometimes dusky red and prone to bleed. Or, again, you may meet with cases in which the ulcer has contracted almost to a chink, the bottom of which is firmly adherent to the underlying fascia by a thick mass of inflammatory fibrous tissue. These differences in the condition of the ulcers are, I take it, mainly due to changes in the condition of the part of the body on which they occur. Below the knee the tendency is almost always towards indolence. In other situations, as I have indicated, there is considerable variety. But whatever may be their surface appearance, in all alike there is this underlying condition, that they are adherent to the deeper parts. And what I wish to impress upon you, as of primary importance in view of treatment, is that such ulcers have no spontaneous tendency to heal, and more especially that it is this character of adhesion to the deeper tissues which is the obstacle to their healing. This being the case, I consider that it would be advantageous if this peculiarity were recognised prominently in the nomenclature of ulcers, inasmuch as we should then be in a better position to identify such, and, having done so, to obtain a clue to their proper treatment. How much should we lose were we to describe a syphilitic or a scrofulous ulcer by a term applicable to the mere appearance it presents on inspection, whether it might be indolent, or weak, or congested, and ignore altogether the constitutional condition at the bottom of it! So here, recognise the fact that the ulcer is adherent to the fascia, and call it, as I do, an *adherent ulcer*, and you not only recognise the condition which is the obstacle to healing, but you put yourselves in a position to undertake its treatment with intelligence, and, probably, with success. Overlook this, or disregard it, and the very best result you could obtain would be, after several months in hospital, a thin pellicular covering, certain to crack and melt away before the patient has been a week at his work.

This brings me to the question of treatment. Having regard to the fact that the ulcer is intimately attached to an unyielding fibrous structure, which is itself also infiltrated with inflammatory deposit, and bearing in mind also that there is a sense of resilience in this structure when it is firmly pressed, I infer that beneath this indurated base the tissues are not thus infiltrated, but are probably in their normal condition. If, then, I expose this normal tissue, I may reasonably expect that it will follow the course which an open wound in normal tissue generally follows—that is, it will produce granulations, which is the condition we are so desirous of seeing take place in the ulcer. It is very easy to accomplish this. No serious operation is required, such as excising the whole ulcer, or even its edges. All that I am going to do is to make a crucial incision right across the ulcer, from soft skin on one side to soft skin on the other. I must take care to go deep enough—deep enough, that is, to divide completely the infiltrated tissue, and expose the normal tissue beneath. The immediate effect of this will be that the elasticity of the cicatricial tissue will cause the edges of the incision to spring apart, leaving four gaping wounds in the base of the ulcer, with four gristly, tongue-like processes projecting from its sides. A few days after an operation such as this I confess that a somewhat alarming appearance generally presents itself to view; and I have known house-surgeons who have seen it done for the first time quietly have their own thoughts about the affair. But the more alarming it looks the better. What happens is this. The soft tissue at the bottom of the incisions pushes up its granulations. The old cicatricial processes retract more and more. The edges of the ulcer retreat. Bright, vigorous, granulations fill up the gap, and at the end of a week the ulcer is twice the size that it was originally. Then the alarming period comes to an end. Soon you find a healthy sore established, and healing goes on apace. Nothing can be more satisfactory than the extraordinary rapidity with which healing is sometimes accomplished under these circumstances. I suppose that the healthy granulations, pressing on the old cicatricial tissue, insinuate themselves into it, and cause it to become absorbed, for in a short time it is indistinguishable. You thus establish a healing sore in the place of the indolent ulcer. I need not say that healing sores do not always go on to heal uninterruptedly. If they are large they probably will not. But do not forget how much you can do by the process of skin-grafting. It would be perfectly futile to attempt to graft this ulcer in its present condition. To succeed in that operation you must have a healthy bed for your grafts. Have you ever observed how a roadmaker repairs a macadamised road? He does not simply lay down loose stones in the hollow places, under the expectation that they will become incorporated with the roadway. If he did so I doubt not they would quickly get kicked about and lost. But you may observe that he selects the wet season of the year for his operation, and by picking up and loosening the hard bottom, prepares a bed for the reception of his material, which thus readily settles down into its place. Well, this reminds me of the operation of skin grafting. Do not waste your time nor annoy your patient by attempting it on an ulcer which is indolent, or callous, or weak, or inflamed. But get it, somehow, into a healthy condition, and then seize your opportunity. In this manner many an ulcer which has been for years a trouble to its possessor may be expeditiously and soundly healed.

A word as to the method of operating. You must make as many incisions as are necessary to liberate the parts perfectly, and you should place them where the ulcer seems to be hardest or most adherent. Above all, you must carry the knife completely through the hardened tissue. This cuts like a raw potato, and when you have first of all made a clean deep cut, it is well then to continue scratching the bottom of the latter with the point of your scalpel. You will know, the first time you do it, from the abrupt sensation of the peculiar harsh sensation, when you have reached the soft tissue underneath. Occasionally you will have to go pretty deep—say, three-quarters of an inch; more frequently less than this. Occasionally also you will cut a large vein. That you had better tie, for its mouth remains widely open.—*Lancet, May* 17, 1884, *p.* 879.

72.—ON THE TREATMENT OF SCROFULOUS CERVICAL GLANDS BY EXCISION.

By JOHN FAGAN, F.R.C.S.I., Surgeon to the Belfast Royal Hospital and the Hospital for Sick Children.

Excision of scrofulous cervical glands has been a recognised mode of treatment for many years among Continental surgeons, notably by the French school. It has been rather sparingly adopted in this country, and other treatment of a less radical nature is usually practised.

I am glad to see, however, that of late there is a growing disposition on the part of physicians to approve of, and surgeons to carry out, this most excellent method in suitable cases. My medical colleagues, both at the Royal Hospital and the Children's Hospital, have from time to time brought under my notice, with a view to operation, certain forms of obstinate gland swellings that resisted all the recognised modes of treatment. I have up to the present time operated in about twenty-five cases, and the result in each case has been most satisfactory. I have on more than one occasion, at this and another Society, shown the patients operated on and glands removed, and to-night I have at random secured two children on whom I operated; one sixteen months, the other a year, ago. In each it is with difficulty that you can detect the seat of the operation wound, its only evidence being an indistinct white streak.

My first case was a very healthy-looking little girl, aged eleven years, whose family history was exceptionally good. She had an oval swelling the size of a pigeon's egg, situated on the left side of the neck, corresponding to a point a little above the centre and towards the inner side of the sterno-mastoid. It existed for more than a year, and resisted the ordinary modes of treatment. I decided on removing the gland, and proceeded as follows:—I made an incision immediately over the centre of the tumour corresponding with its long axis, and the fibres of the sterno-mastoid. Holding it between my thumb and forefinger it conveyed the feeling of being very superficial, but on dividing the upper layers of fascia instead of the gland, the fibres of the sterno-mastoid appeared in the wound. It then occurred to me that I had to deal with one of the upper set of the deep cervical chain. So I carefully separated the fibres of the muscle, divided the underlying layer of the deep cervical fascia freely, and exposed the gland placed in close contact with the carotid sheath. I now seized the mass with a small double-tumour hook, and, using gentle traction, drew it towards the surface, while with careful strokes of the scalpel I liberated it from its bed of cellular tissue, thus removing it with comparative ease and very little hemorrhage. Two smaller glands, placed at either extremity of the large one, I removed in the same cautious manner, after twisting a few small arteries and washing out the wound with a solution of chloride of zinc. I bestowed great care in bringing its edges into accurate apposition by numerous points of very fine silver wire suture.

A bit of protective, a pad of antiseptic gauze, and a bandage, constituted the dressing. On the third day I looked at the wound, and found it healed by direct union. There was neither swelling nor redness nor pain. I removed a few of the sutures and dressed the wound as before. On the fifth day I removed the remaining sutures and put a pad of cotton-wool over the part. On the day following I showed the child to the members of this Society, when the only evidence of the operation was a scarcely perceptible scar, which I expect through time has become still less perceptible.

[After relating several other cases, Mr. Fagan continues as follows:—]

There are a few points connected with the operation and its after treatment to which I think it worth while to direct your attention:—

1. The incision over the gland should not be made too free; but all the underlying structures should be freely divided from angle to angle of the skin wound. When the gland is well

exposed it should be seized with a small tumour hook, and steadily but gently drawn through the wound. In the majority of the cases that are suitable for this mode of treatment this is a simple process, requiring only the occasional use of the knife, a stout director or the handle of the scalpel being sufficient. When all the affected glands are removed, any ragged shreds of cellular tissue that remain should be clipped away with scissors. All bleeding points should be secured, and the wound well swabbed out with a strong solution of chloride of zinc.

2. Regarding drainage of the wound, I have had good results with and without it; still, on the whole, I think it better and safer to drain either with horsehair or very fine tubes. This is especially requisite in cases where the wound is large, and where there has been oozing of blood and difficulty of enucleating the gland.

3. As regards suturing the wound, the finest silver wire should be used. It should not be passed too deeply through the lips of the wound, which should be most accurately adjusted, and the sutures should be removed not later than the third day, and sooner if the slightest inflammatory blush should appear at their points of exit from the skin. The marks that follow the suppurating tracks of the sutures are far more disfiguring than the scar from the incision.

4. As regards maintaining the parts at rest while union is taking place, this is most essential for obvious reasons. The most effectual way of securing this is, I find, by means of a night-cap with a pair of strings attached to either side; these are brought down and fastened in front to a thoracic binder, and drawn sufficiently tight to bring the head well forward on the chest. Such a form of restraint is especially necessary in the case of children, who will only remain at rest on compulsion.

5. Should inflammation attack the wound the tension should be at once relieved by removing some, if not all, of the sutures; and if there has been no drainage, a probe should be passed into its cavity at the most dependent angle, and a small tube inserted.

I have now explained to you a certain well-defined mode of treatment, as carried out by me in a considerable number of cases. To some it may appear very satisfactory, while to others it may seem an unnecessarily heroic method, subjecting, as it does, the patient to a certain amount of deformity no matter how successfully carried out, and not altogether devoid of risk to the life of the patient.

In the whole range of medicine and surgery I question if there is a subject concerning which there is more diversity of opinion, regarding both its nature and treatment, than there is about what we term scrofula or struma. The various and conflicting views held at different periods by equally eminent inquirers concerning the nature of this condition; the innumerable nostrums displacing one another in rapid succession—their virtue often consisting in their novelty—is a striking proof of the unstable nature of the basis on which the pathology and therapeutics of this disease rest. From a purely surgical standpoint I would define the term struma or scrofula as an inflammatory process attacking the tissues of a lowly vitalised organism, and manifesting itself by a slow and silent destructive action. The exciting causes that are likely to give rise to this condition in the lymphatic glands are many and obscure:—Traumatism, direct or indirect, through the lymphatics; all sources of irritation, internal as well as external—for instance, bad teeth, sore throat, bronchitis, enteritis, skin affections, exposure to cold, &c.

Any one who has seen my cases must, I think, admit that the method of treatment I have adopted is the best for those chronic cases that resist all other recognised remedies. Its superiority over the temporising plan will appear strikingly manifest if we compare a patient restored to health after the rapid riddance of the diseased mass, and showing scarcely any mark, with another graphically described by Dr. Clifford Allbutt as "dragging on a chequered and tedious course, drifting perhaps, from doctor to doctor, consuming volumes of cod-liver oil and medicines, breaking up life and prospects by prolonged exile from home, pestered by filthy discharges, or poisoned by decay which is not discharged, disfigured by sinuses, sluggish streaks and lumps of fibrous increase, seamy scars, and indurated gland-remnants. Such patients, thanks to the marvellous pertinacity of life, do generally fight their way into complete or partial recovery, but at the price of permanent disfigurement; at the price of telltale corrugations in the neck; at the price, perhaps, of a deferred pulmonary phthisis, set up by absorption of the partially voided caseous products."—*Dublin Journal of Medical Science, June* 1884, *p.* 495.

73.—ON THE USE OF IODOFORM IN ERYSIPELAS.

By C. Clark Burman, L.R.C.P.Edin., Belford, Northumberland.

Since the introduction of iodoform by Dr. Glover in 1837 its sphere of usefulness has been considerably enlarged. Its *internal* administration has up to the present been limited, being confined to some cases of phthisis, gastric ulcer, neuralgia, and chronic rheumatic pains; but *externally* its use has become almost universal, either to the unbroken skin, or as a surgical dressing for wounds, ulcers, and venereal sores. It is also largely employed in affections of the rectum, vagina, urethra, larynx, conjunctiva, and the oral and nasal cavities, where it can be readily applied. In fact, the topical effect of the drug determines to a large extent its employment, rather than its action on the system; though, no doubt, by absorption it may influence the nervous centres, its chief action seems to be upon the peripheral terminations of sensory nerves.

Its action may be described as anæsthetic, absorbent, stimulant or resolvent, detergent or antiseptic, according to the conditions under which the application is made.

The purpose of this communication is to call attention to the well-marked property which the drug in question possesses, of stopping the progress of erysipelas. I may say that I discovered this action accidentally, and as I am unaware of its employment in this affection I have been induced to publish the following cases in the hope of securing a more extensive trial for it in similar circumstances.

Case 1.—For some time I have been accustomed to use a solution of iodoform in collodion, of the strength of one ounce of iodoform to ten ounces of collodion, as an application to enlarged indurated glands in the neck and elsewhere. On one occasion while painting some enlarged and painful inguinal glands in a man, the subject of chronic eczema of the lower extremities, he called my attention to a well-marked patch of erysipelas affecting the region of the left ankle and lower part of the leg. The usual characteristic appearances were present —considerable infiltration of the cutaneous textures, redness, and heat, but no vesication; the patient complained of the burning heat rather than of actual pain. Bearing in mind Sir James Paget's experience of collodion in erysipelas (see page 335 of Clinical Lectures and Essays), I painted the surface of the inflamed skin with the iodoform-collodion which I had just been using. On my next visit, to my surprise, I found the erysipelas was better; all heat and pain had gone, and the infiltration was rapidly subsiding. The glands in the groin were also much reduced in size and less painful, and in a few days all traces of the erysipelas had disappeared.

The observation of such a satisfactory result led me to adopt the same local treatment in my next cases of erysipelas.

Case 2.—A middle-aged woman had suffered from eczema of the scalp, which had given rise to an abscess over the occiput upon the left side; the abscess had opened spontaneously, and when I was called in had almost ceased discharging. Erysipelas had begun in the neighbourhood of the abscess and spread along the left side of the head, involving the ear, and had then attacked the whole of the corresponding side of the face, extending beyond the middle line for a short distance along the forehead and implicating the right eye to a small extent. The swelling of the tissues upon the left side was so great as to close the eye completely; the pulse was full, rapid, and hard; temperature over 101°, and during the previous night there had been some mental confusion and wandering. Owing to the intense burning pain experienced in the face and surrounding parts she had had no sleep for several nights. I painted the whole of the inflamed surface with the iodoform-collodion, going about half an inch beyond the line of redness. Almost immediately she experienced relief from the pain, and remarked how very cooling the application was; that night she enjoyed several hours refreshing sleep. I prescribed Liq. ferri perchlor. ʒvj ; sp. chloroformi ʒij ; infusi quassiæ ad ℥viij. M. ft. mist. Sig. ℥j tertiis horis sumenda. Upon my next visit a remarkable change had taken place; the swelling of the face had gone down to such an extent that the eye could be freely opened, all pain had ceased, and the disease had not advanced beyond the original mark. Except for the stiffness caused by the collodion my patient felt nothing wrong; the application was repeated, and in a few days I put her on Easton's syrup, convalescence being fully established.

Case 3.—A woman, aged 62, had complained for a day or two of a burning pain over the left parietal and temporal bones, with tumefaction of the scalp and great tenderness on pressure, and when I saw her this was still well-marked; but the disease had now invaded the left side of the face, there was great swelling of the eyelids, profuse lacrimation, intense burning pain over the face and left side of the head, and shooting pains along the left upper jaw; the constitutional disturbance was not excessive. I painted the whole of the left side of the face and forehead and corresponding ear with the iodoform-collodion, and ordered one-eighth of a grain of sulphide of calcium every two hours. The progress of the disease was apparently at once arrested, the pain and heat in the face ceased, though the scalp continued tender. I then ordered Easton's syrup with compound tincture of cinchona, and in the course of a few days she had quite recovered.

Case 4.—While the preceding case was under treatment, I saw another case of facial erysipelas in a woman, aged 69; it was on the left side, but much more extensive than in Case 3, and with a correspondingly greater amount of constitutional disturbance. I applied the iodoform-collodion as in the other cases, and almost immediately she expressed her thanks for the great relief it had afforded her. The pain ceased, the burning heat, which all these patients had complained so much of, was entirely relieved, and the disease showed no signs of extending after the first application had been made. This patient was ordered :—Liq. morphiæ ʒiij ; sp. chloroformi ʒij ; sodii sulphatis ʒ iv; tinct. cinchonæ co. ʒ vi; infusi buchu ad ℥ viij. M. ft. mist. Sig. ℥ss tertiis horis sumenda. In a day or two she was perfectly convalescent.

In the cases just recorded the disease appeared to be *at once* stopped—"jugulated," if I may use the word; in no case was extension observed after the first application; in no case did vesication occur; it seemed as though the cutaneous inflammation subsided immediately under the influence of the drug thus topically applied, and any exudation beneath the epidermis was prevented.

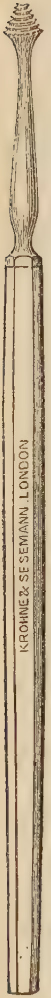
It may be asserted that the successful result was due, in part if not entirely, to the medicinal treatment adopted; but in Case 1 no internal treatment, except a smart purge of sulphate of magnesium, was tried, and yet by the next day the disease had subsided. In Case 2 I learned that only a few doses of the iron-mixture had been taken, as it produced vomiting; and in Cases 3 and 4 I purposely adopted a different plan of treatment. Even granting that some credit is due to the internal remedies employed, I consider the *immediate* benefit which was experienced in all the cases points to the application as being something more than adjuvant to the medicine. Now Sir James Paget assures us that simple collodion, while giving relief to certain well-marked symptoms, *did not stay the progress of the disease,* so that I think we may safely assume the iodoform played an important if not the chief part in arresting the attack. However, in my next case I intend to withhold all internal remedies and watch the effect of the iodoform-collodion alone; I shall then be better able to speak positively on this point.

Iodoform thus applied has certainly proved the most successful in my experience of the many remedies employed externally for erysipelas. Among those I have used with but varying success I may mention the glycerole of lead (as recommended by Balmanno Squire), liquid extract of ergot, spirituous solution of tannic acid, and the ordinary lead and opium lotion; but with none have I found anything to equal the good effects of iodoform-collodion.

Its prompt relief of the burning pain, which is such a constant symptom of erysipelas, its apparent power of arresting the progress of the disease, and the remarkable freedom from irritation during the period of desquamation following the subsidence of the disease, are all strong reasons in favour of its extended use. It has disadvantages, I admit, especially its odour, which to some patients is objectionable; this may, however, be overcome. The temporary disfigurement caused by its application, particularly in cases of facial erysipelas, will not I think be urged against it when its advantages are thoroughly appreciated.—*Practitioner, May,* 1884, *p.* 365.

74.—COMPLETE DESTRUCTION OF PATCHES OF LUPUS VULGARIS BY A NEW DOUBLE-SCREW EXCAVATOR:

By Malcolm Morris, F.R.C.S.Ed., Surgeon to the Skin Department of St. Mary's Hospital, London.



It is generally admitted that surgical treatment alone is successful in this obstinate malady. Those surgeons, however, who have practised either scraping, or scarification, or both, will have been disappointed to find small isolated tubercles reappearing in the substance of the scar, or in the margin of the original patch. The truth is these little tubercles are difficult to remove by scraping or scarification. Yet it is absolutely essential that they should be completely destroyed, as otherwise they will become centres for the spread of the disease. To accomplish this end it is necessary, first, that the instrument should be somewhat larger than the tubercle, so that when inserted it may firmly grip the surrounding tissue; secondly, that it should possess many lacerating edges, whereby the nodule may be thoroughly ploughed up; and lastly, that it should be capable of rapidly penetrating to the bottom of the nodule. Finding it impossible to comply with these conditions with the ordinary scoop, I devised an instrument, which has been made with much skill for me by Messrs. Krohne and Sesemann of Duke-streeet, and which I think, fairly meets all the requirements mentioned—that is to say, in its size and in the number of its edges it fulfils the first two essentials, and a few words will suffice to demonstrate its still greater advantage of rapid penetration. In a single-threaded screw, of, say, six edges, it is clear that six complete turns of the instrument will be required in order to insert the cone to its full depth. Now, the speed of entry is known to be in direct proportion to the "pitch" or distance apart of the threads of the screw. My plan has therefore been to arrange the lacerating edges round the cone in the form of two spirals, parallel to each other, in technical language, a double-threaded screw. By this means, as the pitch of each spiral, considered separately, is double that of the single-threaded screw, it is obvious that the cone can be inserted to its full depth with but three turns of the instrument, the net result being to reduce the duration of the operation, and therefore the sufferings of the patient, by fully one-half. In withdrawing the instrument the soft new growth is removed and the resulting scar is flat, pale, and satisfactory.—*Lancet, July* 26, 1884, *p.* 141.

75.—TREATMENT OF LUPUS VULGARIS BY THE LOCAL APPLICATION OF SULPHUROUS ACID.

By Herbert Collier, M.D.Brux., L.R.C.P.Lond., M.R.C.S.

Once again has the subject of lupus been brought prominently before the profession by a paper recently read at the Medical Society by Mr. Jonathan Hutchinson. My chief object, however, is not to offer any special comments upon the subject of Mr. Hutchinson's most interesting paper, but to present to the profession what I must humbly consider, at all events in my own experience, and (what is far more important) in the estimation of one decided authority, Mr. James Rouse, to be one of the most successful methods of treatment yet brought to light for lupus vulgaris—the local employment of sulphurous acid to the ulcerated surface. To this gentleman is due, I believe, the honour of first having employed this form of treatment. Mr. Rouse informs me, that in nearly every case in which this treatment has been carried out carefully under his direction, some improvement has occurred, although, in not a few, the patients' premature discharge from hospital precluded the possibility of treatment being continued to a successful issue.

The experience of Mr. Rouse exactly accords with my own; for in nine cases treated by the local application of sulphurous acid, I am able to record five distinct cures, three in which great improvement was effected, but which, unfortunately, passed from my hands before a cure could be concluded, and only one in which a negative result was obtained—this last being under treatment for fourteen days. And this form of treatment will, I am sure, be not the less acceptable, because it is free from the usual modifications of cutting, bruising, burning, &c., now so generally resorted to, and consists simply and wholly in the employment of a slightly irritating application to the ulcerated surface of the disease.

Sulphurous acid has long been recognised as a valuable disinfectant and parasiticide, and has been in frequent use for most of the local skin affections, connected with the presence of living organisms. It has also been much advocated by various authorities for such general affections as tonsillitis, malignant sore throat (scarlatinal and laryngeal), diphtheria, croup, influenza, and chronic phthisis, locally applied, and internally administered, whilst in typhus and typhoid it is in great repute abroad, its advocates claiming that by its employment in large doses, these fevers are diminished in both severity and duration. I am not, however, aware that any very exact explanation has yet been offered of its physiological or therapeutic actions when taken by the mouth.

Recognising its powerfully destructive effects upon some forms of micro-organic life, it will not be difficult to conceive how its curative results may be produced in lupus vulgaris, if we assume that the bacillus associated with this disease, exerts some distinct influence in keeping alive the obstinate ulceration (perhaps by preventing the formation of healthy granulations), but is incapable of existence, growth, or activity in the presence of sulphurous acid. Besides this germ-destroying influence, sulphurous acid also exerts a powerfully stimulating action when applied to the surface of open wounds, and I have particularly noticed its excellent effects upon certain indolent ulcers, which have resisted the influence of many other modes of treatment, including carbolic acid. In fact, my experience of its use, in these particular cases, compels me to consider that it is preferable to the latter in most forms of simple ulceration. It is far less irritating, and consequently may be employed where carbolic acid would certainly do harm. Its stimulating influence may account then, to some extent, for its beneficial effect in lupus vulgaris. In gonorrhœa its effects, as an injection, are most happy, and I shall shortly publish the notes of 120 cases of this disease treated by its local employment.

In the local employment of this remedial agent, it may be applied in the form of a lotion, or an oil, or in the gaseous state. The last-mentioned modification is most useful, when its application is required to parts distant from the respiratory organs, and can readily be obtained by burning sulphur in a jar or open-mouthed bottle, and allowing the rising fumes free contact with the surface to be treated ; the frequency and duration of these fumigations will mainly depend upon the progress made during its employment, but, as a rule, two applications daily, each for about twenty minutes, will be found sufficient to produce the healing effect of the remedy.

The lotion is best obtained by the use of the pharmacopœial preparation of the acid, either alone, or diluted to relative strengths of one in two, one in three, or one in four ; the last preparation is the weakest which should be employed. It is a clean and simple mode of application, and can be applied to any part of the face without causing disagreeable effects ; the great objection to its use being that it has to be constantly repeated, and evaporates much more quickly than when employed in the form of an oil.

This last-named method is my favourite form of applying the remedy. It is best made by dissolving the anhydrous acid (which may be procured at all druggists in the shape of a concentrated alcoholic solution) in castor or olive oil. I may state that I consider the former to be preferred as a vehicle, as it holds the acid in more complete solution, parts with it less readily, and forms a more perfect covering to the surface of the wound. The anhydrous acid mentioned in connection with the sulphurated oil, may also be employed proportionally diluted as a lotion.

In conclusion, I may be permitted to record the notes of those cases which I have treated most successfully by this method up to the present.

Case 1.—Emily H., aged 13, was suffering from an ulcerated lupoid patch, the size of a shilling, which involved the right ala of nose and adjacent part of the cheek. Nothing of interest in personal or family history. Has always been delicate. When eleven years of age, scratched herself with a thorn. This gave rise to a small sore (which has never healed), and lately has been getting larger. Child pale and thin. Tongue coated. Breath offensive. Several enlarged, but painless glands behind the right sterno-mastoid muscle. Viscera healthy An indolent ulcer with raised edges, and surrounded by thickened dusky-coloured congested skin, occupying the above-mentioned position. She has been treated on and off since the sore was first noticed.

She was placed upon a mixture of soda, rhubarb, and diluted hydrocyanic acid, and a solution of sulphurous acid in glycerine (at first one to six and ultimately one to three) was kept constantly applied to the surface of the whole patch. In three weeks the wound had entirely healed, the patch itself assumed an almost healthy aspect, and the enlarged glands could no longer be felt.

Case 2.—H. S., aged 15, had suffered from an open sore affecting his lower lip and chin for a "long time, certainly more than two years." Does not remember when or how it first came, but it has been getting rapidly larger during the last six months. The mother says that she first noticed it a few weeks after he had scratched a pimple off his chin. It was then very small. Father died of consumption at the age of forty-two. Mother alive, and in good health. One sister died in infancy of "diarrhœa," and one at the age of seventeen in a "rapid decline." Three younger brothers all alive and healthy. Has had scarlet fever, measles, and whooping-cough, but all very slightly. Viscera all healthy. Occupying the chin and lower lip is a large irregular and somewhat excavated ulcer, the size of a two-shilling piece, surrounded by congested and thickened skin. The lower edge more prominent and somewhat everted. Cod-liver oil, steel wine, and arsenic were first administered, and although the general health improved markedly, the local disease underwent no change for the better.

Glycerine solution of sulphurous acid in equal parts was now applied, and from its first employment great benefit was derived. In ten weeks the wound had healed, and treatment terminated.

Case 3.—Miss H., aged 33, consulted me upon the subject of a small indolent ulcer, situated upon the left ala of the nose. Does not remember how it first appeared, but is quite sure that she has been troubled by it for more than three years. It has not increased in size for nearly a year. Her general health is good. The ulcer does not give rise to much pain. Occupying the edge and outer surface of the left nostril is a lupoid patch, the size of a sixpenny-piece, presenting towards its upper aspect a smooth indolent ulcer, surrounded by thickened, congested, and shiny skin.

Sulphurous acid, in the form of an oil, composed of ʒ i. of Herring's alcoholic solution of sulphurous anhydride, with two ounces of castor oil, was applied. In ten days the ulcer had completely healed.—*Medical Times, April* 26, *p.* 551.

76.—ON THE NEW REMEDIES FOR PSORIASIS.

By the EDITOR OF THE BRITISH MEDICAL JOURNAL.

During the last few years, some real progress has been made in the local treatment of skin-diseases. Amongst the new remedies which have come into use, chrysophanic acid holds a conspicuous place. Its effect in curing psoriasis is undoubted; and if it be not universally employed, it is more on account of the inconveniences connected with its use than from any doubt of its real efficacy. Several ingenious methods have been lately introduced with the object of remedying these inconveniences. Amongst them, Pick has recommended a mixture of gelatine and chrysophanic acid in different proportions, and the method has now been introduced to the profession for some time.

Auspitz has lately conceived the idea of using "traumaticin" instead of gelatine as an excipient for chrysophanic acid, traumaticin being a solution of one part of purified gutta-percha in ten parts of chloroform. This preparation adheres closely to the skin, and remains from two to three days without change. Gelatine, on the contrary, becomes detached within several days by the rubbing of the clothes or the movement of the limbs. Traumaticin forms a much thinner and more delicate pellicle than either collodion or gelatine, and is more easily borne; and as applications made with the solution of the strength of ten per cent. have never provoked irritation, even when applied to considerable surfaces, either in children or in adults—the chloroform evaporating slowly and the gutta-percha becoming only gradually hard—it is easy, whilst making an application, to rub it well in upon a considerable number of patches. By means of this rubbing the scales can be removed, and the chrysophanic acid directly applied to the bare and bleeding patches.

The method of Auspitz is carried out in this manner. After the scales have been removed by means of a bath and application of soap, all the patches are dabbed and rubbed with a brush steeped in a mixture of the strength of ten per cent. If the affection be not extensive, the application is renewed each day. If it occupy a large extent of surface, it is renewed only in two or three days. If the scales be in considerable quantity, a soap-bath is prescribed. If the scales be not very plentiful, soap-lotions are sufficient. After one or two rubbings many of the patches appear flat, and in general the scales persist only on the borders of the patches. After two, or at the most a dozen, applications, according to the intensity and extent of the psoriasis, the infiltration and scales disappear, and in their place are found white patches surrounded with a red or violet-brown border. When the disease is limited in extent, one application renewed daily for three to six days is sufficient to cause the patches to disappear, without the necessity of having recourse to lotions or baths.

M. Besnier has experimented with all these methods in the St. Louis Hospital, Paris, and gives a preference to the method of Auspitz, which, however, he has somewhat modified. After removing the scales, he rubs the patches with a common house-painter's brush, soaked in the mixture of chloroform and chrysophanic acid at fifteen per cent. The duration and energy with which the application is made should vary according to the thickness of the patches of psoriasis. The application gives rise to a slight sensation of heat and smarting; in a few seconds the chloroform has evaporated and the patch is literally infiltrated with pure chrysophanic acid, having become of the deep yellow colour of iodoform. It is only then that, with a large flat brush, the patch is covered with a layer of traumaticin, which must be thickly laid on, and which extends beyond the borders of the patch. The result is said to be excellent.

M. Besnier has applied this method even to parts covered with hair, and without any untoward accident, local or general. The method has been found useful chiefly in cases of moderate infiltration; but when the patch is thick, fissured, and desquamating abundantly, the effect is not so striking. In such cases he has used, instead of chrysophanic chloroform, a ten per cent solution of pyrogallic acid in ether, which is then immediately covered with a layer of traumaticin.

In this connection we would, however, remind our readers that pyrogallic acid must be applied to the skin with great caution, several cases having been reported in which fatal results followed its absorption.—*British Medical Journal, May* 24, 1884, *p.* 1006.

77.—ON PSORIASIS AND ITS TREATMENT:

By Louis A. Duhring, M.D., Professor of Dermatology in the University of Pennsylvania.

Psoriasis is one of the most important of the diseases of the skin. It may be defined as a chronic disease characterised by reddish, dry, inflammatory, more or less thickened patches, variable as to size, shape and number, and covered usually with abundant whitish or grayish, mother-of-pearl-coloured, imbricated scales. The disease varies greatly as to the extent of its development, but as a rule its characteristics are well marked. It begins in small reddish spots, which soon became scaly. These increase in size slowly, or sometimes rapidly, and, as a rule, are sharply circumscribed. The degree of inflammation varies. Itching or burning, though not infrequently absent, may be annoying symptoms.

The different sizes and shapes of the lesions give rise to the several varieties of the disease; thus, lesions in the form of points, punctata; drops, guttata; coin shaped and sized, nummularis; circles tending to clear in the centre, circinata; and segments of circles, giving a serpiginous appearance, gyrata. Where there are large extensive patches without any special form, diffusa; where large parts of the surface, as the trunk or extremities or both, are chronically involved, inveterata. All regions of the surface may be attacked, but more specially the extensor surfaces and the elbows, knees, back, scalp, and forehead. The palms, soles, and nails may also be invaded. The face is usually exempt. It is non-contagious, and as a rule is found in strong, plethoric, and otherwise healthy subjects rather than in the debilitated. The disposition to its development is sometimes inherited. It never attacks infants, and only rarely appears before the age of eight, and, as a rule, not before fifteen or twenty. It occurs in both sexes nearly equally, and is more common in northern climates. In ten thousand cases of diseases of the skin collected by McCall Anderson, of Glasgow, seven hundred and twenty-five were of psoriasis. It may also be associated with a gouty or rheumatic state.

Pathologically, the disease consists of hyperæmia with hyperplasia of the epidermis, with secondary inflammatory changes in the corium, resulting from pressure. It must be distinguished from eczema, syphilis, tinea circinata, and lupus erythematosus. The sharply defined outline of the lesions, and the presence of the characteristic pearly scales, are usually sufficient to establish the diagnosis.

As to treatment, the constitution and the general condition of the patient must be taken into consideration; also the question as to how much time the patient can devote to the disease, and whether the patient is a child or an adult. Arsenic is our most valuable remedy, and it should be used judiciously and for a long period. Fowler's solution, given in two or three minim doses to an adult for months, will cure many cases. There are, however, examples in which arsenic will aggravate the disease. In these cases sometimes phosphorus, phosphide of zinc, carbolic acid, and tar capsules will prove useful. Also alkalies, as liquor potassæ, ten to twenty drops three times daily, freely diluted. This latter remedy is most useful in many cases.

Local treatment is also of great value. Applications of sapo mollis, or of an alcoholic solution of soap, followed by baths, will often be found useful. Alkaline baths must also be mentioned as serviceable adjuvants in the treatment. In highly inflammatory cases, inunctions with olive oil will sometimes prove efficacious. The most generally useful remedy is tar, in one form or another. Tar ointment is one of our most reliable remedies. Oil of cade, pure or with alcohol, one to three drachms to the ounce, applied with a brush; liquor carbonis detergens; liquor picis alkalinus; oleate of mercury; ointment of the nitrate of mercury; white precipitate ointment; and pyrogallic acid, are all excellent remedies. Chrysarobin is very valuable. It should always be used with caution. It is liable to set up dermatitis of the surrounding skin. It stains a purplish or mahogany colour everything with which it comes in contact, and this is its disadvantage. Still, it generally has a very happy effect on the lesions, often curing them rapidly. It is best applied in the following form:—℞. Chrysarobini, ʒj; Liq. guttæ perchæ, f ʒx. M. Sig. To be painted on the lesions after the scales are removed. By this means it is held to the lesions, and is less liable to stain. It may also be applied as an ointment, in the strength of from fifteen grains to one drachm to the ounce.—*Philadelphia Medical News, July* 12, 1884, *p.* 30.

78.—ON THE OLEATES AS THERAPEUTIC AGENTS.

By Dr. Shoemaker, Pennsylvania, U.S.

These substances which have lately come into evidence as therapeutic agents, formed the subject of a lecture which Dr. Shoemaker, of the Jefferson Medical College, Pennsylvania, U.S., lately delivered at the Westminster Hospital.

Dr. Shoemaker claimed to have overcome the disadvantages attached to the employment of the older oleates, not only by having obtained definite chemical compounds instead of the unstable, unreliable solutions of oleates hitherto sold as such, but also that by drawing his oleic acid from other sources he has been enabled to produce it chemically pure and in a condition favourable to the formation of definite oleic salts with any given metal. Dr. Shoemaker insisted on the impropriety of employing any of the various petroleum products, vaseline, &c., as a basis for ointments, either of oleates or not, the animal fats having much more affinity for animal tissues than the former, and penetrating the epidermis and glands much more easily and completely. This he had established by a series of experiments extending over many years, both in the physiological laboratory on the lower animals and clinically in the wards, where one set of cases were treated with the metal or alkaloid in a petroleum basis, and a second group where lard was the vehicle. The results went to show that absorption took place much more rapidly and effectually in the latter set of cases than in the former. He remarked incidentally that the alkaloidal oleates were exclusively local in their action, no trace of them being obtainable in the secretions or excretions, although large quantities were used. For instance, the oleate of quinine, which in the hands of certain practitioners is said to possess a controlling influence over malarial fevers, has proved inert in the many cases which have been treated by its means by Dr. Shoemaker, nor was there any evidence of its having been absorbed. Veratria, similarly used, demonstrated even more markedly this difference. The lecturer next considered the individual oleates of the metals, the first being the oleate of aluminium ; this is prepared by treating the sulphate of aluminium with sodium oleate, the result being a powder which, combined with a fatty substance, forms an ointment of service in muco-purulent discharges from the cutaneous surface, as, for example, in intertrigo occurring round the breasts and in the inguinal regions in eczema, and as a dressing for burns. It may be used in the proportion of from five to thirty grains to the ounce of lard. The arsenicum oleate, a reddish-brown waxy substance, is a preparation which, rubbed down with lard in from five to sixty grains to the ounce, according to the effect desired, forms a most important alterative and escharotic, of use in the treatment of epithelioma, ulcerating lupus, and in old chronic ulcers. Bismuth oleate, a pearly unctuous material, is a valuable emollient application in the various forms of rosacea, acne, sycosis, &c. Cadmium oleate, a yellowish-white mass, combined with lard in the proportion of from five to fifteen grains to the ounce, has a marked astringent action bordering on an escharotic, and has been extensively employed in the treatment of glandular enlargements and thickening of the integument. Copper oleate, a beautiful green substance, mixed with lard in from ten to sixty grains to the ounce, yields an elegant preparation, which is especially effective in ringworm, also in favus and tinea versicolor, or chloasma. The oleate by itself, melted and spread on muslin, or leather, is of great service in thickened conditions of the integument, as corns, warts, and bunions. The oleate of iron is a reddish-brown mass, readily soluble in the fats, and has a decidedly styptic action, and may be used with benefit in arsenical sores. Lead oleate, similar in appearance to the cadmium oleate, when mixed with equal parts of lard produces an elegant ointment, which is preferable in its action to the litharge ointment, and has been much employed with satisfactory results in the various forms of eczema. Mercuric oleate made into an ointment with lard is useful as a discutient to inflammatory exudations, in thickened conditions of the integument, such as corns and warts, in pigmentary deposits, and parasitic affections. The mercurous oleate is a new preparation, which I have quite recently described for the first time, and may be used for the same class of cases where more decided effect is required. It is one and a half times as strong as the preceding, and it is the oleate which should be used in the inunction treatment of syphilis. Nickel oleate is a greenish waxy mass, which Dr. Shoemaker has employed in an ointment containing from five to fifteen grains to the ounce, as an application to hard, horny granulating surfaces. It resembles cadmium oleate in its astringent and somewhat escharotic effects. Silver oleate is a brownish pulverulent substance, and in the form of an ointment is valuable applied to ulcers, especially bedsores, in pruritus, erysipelas, and the old indurated ulcers met with on the extremities. The last of the series, the zinc oleate, is a white, pearly, impalpable powder, and is the most important of all the oleates. When diluted with an emollient powder it forms an excellent toilet powder for the face, particularly in seborrhœa oleosas, or " shiny face," and in intertrigo, and as an ointment it is most valuable in acute eczema, hyperidrosis, and bromidrosis. Dr. Murrell has used this preparation extensively, and has reported very satisfactory results from its employment. —*Lancet, July* 19, 1884, *p*. 122.

AFFECTIONS OF THE EYE AND EAR.

79.—ON THE TREATMENT OF IMMATURE CATARACT.

By W. A. McKeown, M.D., M.Ch., Surgeon to the Eye, Ear, and Throat Hospital, Belfast.

I propose to ask you to consider with me some points relating to the extraction of cataract. One of the fundamental rules regarding that operation is that we should wait until the cataract is mature. This rule is seldom departed from, and then with a considerable amount of misgiving. Patients are kept waiting for an indefinite period—it may be for many years—while the process of ripening is going on; a period of gradually failing vision, perhaps of anxiety and failing health, of possible penury or destitution. Among ophthalmic surgeons, there will be unanimity on this point—that, if we could only remove this barrier of immaturity, and devise some method of operating with success on all cataracts, no matter what may be their condition of maturity—we would confer a great boon upon the community, and add considerably to the prestige of ophthalmic science. And I hope that ere long the experience of my brethren will enable them to share with me the opinion, that all lenses, whether cataractous or not, and if cataractous, whether wholly or partially so, may be extracted with as much success as the most mature cataract may be at present. I shall state, very shortly, the grounds upon which I base my opinion, and upon which I venture to ask you to give a trial to the procedure which has given me very promising results. That method I may designate as intracapsular or intralenticular injection.

The chain of observation and reasoning by which I came to practise this method is very simple. We have all noticed how tedious it is at times to remove cortical substance, and the necessity for frequently waiting for the resecretion of the aqueous humour. Why, I thought, should this process not be shortened by injecting inside the capsule a little water of about the temperature of the body to wash out the cortex, or at any rate to facilitate its removal? A little pure water differs so little from the aqueous humour, that it could hardly be regarded as a foreign body. Besides, were it necessary to have a fluid for injection of about the same compooition as the aqueous humour, that could be easily prepared. The introduction of water into the eye was less likely to do harm to the structures than gold, silver, or steel instruments used as scoops. Besides, the water would exercise a certain force on parts which could not be safely reached by any instrument, and which too often contained fragments of the lens, the cause of destructive inflammation. Unless the temperature were too high or too low, or the injection were made with too much force, no reasonable fear of injury could be entertained.

On looking up the question of the relation of the capsule to the lens, with a view to find support or opposition to my views, I found in a small book of lectures published in 1849 by our distinguished countryman, Sir William (then Mr.) Bowman, a very interesting observation. In speaking of the elasticity of the capsule, he stated that on one occasion, when making some observations on this subject, he allowed a lens to remain in water for some time, and found that the fluid had by endosmosis passed within the capsule, and that the lens was detached from the capsule completely by a layer of fluid. On pricking the capsule with a needle, its elasticity was so great as to eject the water with considerable force. In this I found strong evidence in favour of my intracapsular injection-method for very immature cataracts and clear lenses. When such a separation of the lens from its capsule took place in a short time by endosmosis, why should not the lens be separated at once or quickly from the capsule by injection? Sir William Bowman's observation showed me that the connection between the lens and its capsule was easily severed, and left no doubt on my mind that, by a properly constructed needle, introduced immediately beneath the capsule, water injected would find its way rather towards the surface than into the body of the lens. In fact, assuming the point of puncture sufficiently occluded to prevent the water from coming back, the elastic capsule would inevitably be distended.

The first case in which I used the intracapsular injection was one of senile cataract. The progress of the case was normal; the injection had no injurious influence. I used the water of a temperature of about 100° Fahr. Since that time I have used it in almost every case in which I have operated, and in various ways; and this I can say, that in no case does it seem to have given rise to any tendency to a suppurative process. I have used it in various cases of immature idiopathic cataract in which the periphery of the lens was clear, and of immature traumatic cataract; and I need not point out that such cases afford a good test of the capability of the method. It is quite as easy—indeed, I should say more so—to remove a perfectly transparent lens as one in which only the cortex is transparent.

The methods of injection which I have used are: 1. The introduction within the capsule of a needle attached to an ordinary hypodermic syringe. If there be any part of the lens-substance easily disturbed, the injection usually ruptures the capsule a little at the point of puncture, and washes out a good deal of cortex. It is certain that it clears out masses quite easily which could not readily be removed, even by a scoop. This mode of injection is perfectly safe. 2. After removal of the nucleus, the introduction of water inside the capsule by gravitation from a bottle fitted with a tube. 3. The introduction of a similar terminal to that attached to the bottle, but fixed to the syringe. The latter two methods require a good deal of care, and involve the question of the force allowable, and the time during which the flow of water and the syringing can be safely continued. It is difficult to regulate the temperature with precision, because the syringe and bottle, when removed from the vessel in which they are immersed, lose temperature quickly. I have had, however, instruments constructed which, I think, obviate the difficulty experienced in my first operations, and which I now have pleasure in submitting for your inspection.

I need hardly add that the power of completely removing any lens will have an important bearing on the question of the part played by the lens in the causation of glaucoma, which has been so ably brought before the profession by our distinguished associate, Mr. Priestley Smith, and which is not likely to be settled until it be recognised that a clear lens can be removed with perfect safety from the eye. I have already extracted one in glaucoma, but the case was exceptional in several ways, and I am not prepared to form any idea whether the removal of the lens in ordinary cases will diminish tension.

I had an opportunity last week of trying the effect of intracapsular injection in a perfectly clear lens in a healthy eye. The patient was aged sixty years, and was affected with a cancer of the orbit, which necessitated the excision of all the orbital contents. Before performing the operation, I punctured the eye, and injected water beneath the capsule. The capsule was immediately distended. On opening the eye afterwards, I found the capsule ruptured anteriorly, one segment retracted, and the other lying on, but separated from, the lens.

The relative harmlessness of intra-ocular injection being once recognised, other applications of it will suggest themselves, as, for example, in the case of certain affections attended with hypopyon. I have used it already in some such cases, I think with advantage.

In any new operative procedure, the most minute particulars are of consequence. These I should have given you, but this is neither the time nor place. I purpose shortly publishing all my cases in full.

Before bringing the question before the profession, I should have preferred to wait and introduce it in a more complete way; but when I found I had to address you, I selected the subject which was engrossing my attention, and which I was sure would be most interesting to you. In addition, my experience of the method, although not great, extending only over a period of three months, was sufficient to enable me to give you an idea of its value and of its relative innocuousness, and to warrant me in asking you to assist in determining its capabilities and its place (which I expect will be a high one) in the ophthalmic surgery of the future. To summarise, it shortens operations, it puts aside scoops, spoons, and curettes, does away largely with the tedious process of friction through the lids to remove cortex, and enables me to undertake operations of which previously I should not have dreamt.—*British Medical Journal, Aug.* 2, 1884, *p.* 238.

80.—ON THE CAUSE OF MINERS' NYSTAGMUS.

By Simeon Snell, Ophthalmic Surgeon to Sheffield Infirmary.

Mr. Snell stated that he had long held the opinion, as the result of clinical experience, that the cause of the disease was to be found in the peculiar manner in which the miner performed his work, whatever secondary influences other surrounding circumstances might exert. He had seen no evidence to support the theory of central disease, and believed the poor illumination of the "safety-lamp," and other causes mentioned by writers, were insufficient to account for the affection. He described the various classes of men engaged in a coal-pit, and the kind of work performed by them. The disease appeared to be confined to the "coal-getters." He had previously stated that, in his experience, men suffering from this affection had been engaged in work which necessitated their lying on their sides. Some of the "coal-getters" were employed in this manner, in what was termed "holing," the process of driving a cutting under the seam of coal; this hole made might reach a yard or more underneath the coal. This was done to facilitate bringing down the coal by wedges. The hole made might be only 18 inches to 2 feet high, and a man working in this would be cramped up and lying on his side. Further experience had corroborated the opinion expressed nine years ago; and, though cases were constantly under observation, he believed they had all been engaged in the manner mentioned. He stated also that he had descended into a pit, and as anticipated found the men occupied in "holing" and working on their sides affected (four out of six examined), whilst other coal-getters and other workers in the pit appeared to be free from it. Mr. Snell explained that working in the manner mentioned, it followed that the eyes were frequently thrown into an oblique position upward and to the left or right—a position much more fatiguing than simply looking upwards. The muscles affected would thus be the superior rectus, the inferior oblique, left internal rectus, and right external rectus, if looking to the right or substituting the right internal rectus and left external rectus if looking to the left. He considered the nystagmus arose under conditions recognised as "chronic fatigue" in other regions, and analogous to writers' cramp, etc. Recovery took place, if the patients ceased their work in the pit, in a variable time; it was possible that changing the manner of work would be quite sufficient. Strychnia and other remedies appeared to be useful as adjuvants.—*British Medical Journal, July* 19, 1884, *p.* 121.

MIDWIFERY,

AND THE DISEASES OF WOMEN AND CHILDREN.

81.—ON TURNING IN CASES OF CONTRACTED BRIM.

By Peter Lodwick Burchell, M.B., Surgeon-Accoucheur to the City of London Lying-in Hospital.

I have, frequently, been consulted by friends in cases where the labour has been so lingering, that great anxiety has resulted, and upon looking into my case book, have found the details of as many as 45 cases, such as follow, out of 8000.

A woman, who has had several children, easily brought naturally into the world, in about the sixth or seventh labour finds herself unable to be relieved in the usual easy manner; and her medical attendant, no advance having been made for many hours, is at last obliged to have recourse to long forceps which often failing, subsequently to craniotomy.

I find I have met with forty-five cases in which a contracted brim, resulting, as it appears to me, from a deposit upon the promontory of the sacrum, after several natural births, has necessitated some other than the ordinary treatment. I will only give a brief account of one patient, that may be interesting to some of my younger colleagues, and the treatment adopted, useful for their guidance.

What I am about to advance is *now* no new proceeding, but when I first practised it I believe it *was* new, or at any rate very rarely had recourse to. The first that occurred to me, was a private patient of one of the Royal Maternity midwives (Mrs. Griggs), when I held the office of one of the surgeons (a good many years ago).

On Aug. 31st, 1856, Mrs. B—, an immensely fat woman, æt. 38, had been in labour with her eighth child many hours. Head above brim with a large "caput succedaneum," pains had been very violent but were diminishing in power, and the patient's strength beginning to fail. I applied long forceps but did not succeed in delivering, and had recourse to the perforator; she made a good recovery. I found on inquiry she had always had easy deliveries, and the midwife informed me she had had children quite as large as the one I had just brought into the world, and generally, she was in the house but a short time previously to the birth.

At Mrs. B—'s next confinement, which was on Jan. 12th, 1858, I was engaged, and when summoned found os uteri very high up and dilated to the size of a crown-piece, and very soft and dilatable; so I at once determined to try delivery by turning, and brought a full-sized child into the world alive, but not without some difficulty.

The same course I adopted in the same patient at two subsequent labours with the like result. Since which period I have followed the same plan in forty-five cases as stated, saving the lives of thirty-eight children and with no fatal results to any of the mothers. I have been very much surprised to find that this mode of practice has been very rarely followed by the gentlemen (and some of great experience) with whom I have had communication upon the subject. I know several of our professors believe that there frequently *is* a diminution in the capacity of the inlet of the pelvis in women after bearing many children, quite independently of ordinary disease.

Dr. Roper, if he be present, will remember one case, a patient of his late lamented partner, Mr. Hopkins, that came under my care, a few years since, of contracted brim, in which I saved the life of the child by this treatment; at the woman's previous labour its life was sacrificed, and brought into the world with the greatest difficulty. I am a great advocate of the use of long forceps in suitable cases, but many such as I have just mentioned are better treated by turning according to my experience.

Dr. Barnes observed that turning in minor degrees of pelvic narrowing had been much resorted to since Sir James Simpson advocated it. He himself had practised it largely and had placed turning between the forceps and craniotomy. Greater experience, however, had led him to the conclusion that Tarnier's forceps give a better chance of delivering a live child than did turning. With the forceps in common use, turning in some cases was better; but he believed the cases were very rare in which Tarnier's forceps was not superior.

Dr. Champneys said that he had two points to call attention to in connection with Dr. Burchell's interesting cases. The first was that increasing difficulty in successive labours was well known and sufficiently explained by such facts as the increasing powerlessness of labour, the increasing size of the children and the increasing size and hardness of their heads. Such a theory as progressive diminution of the pelvis was therefore unnecessary, but it was also directly contrary to known facts. The growth of bony tumours was very rare, and the direct measurement of the pelvis by the whole hand—by which alone even approximate accuracy could be attained, had not apparently been practised in his cases. Where it was practised, no such result as that indicated had been arrived at. With regard to the frequent use of turning, it must be remembered that a fallacy surrounds the frequent use of all operative procedures; the practitioner who turns all children or who puts forceps on all heads will of course get the best per centage in the results of operation cases, but will by no means save the most women and children.—*Transactions of the Obstetrical Society of London*, vol. xxv., 1884, *p.* 61.

82.—ON A CASE OF FACE PRESENTATION.

By P. J. Cremen, M.D., Physician to the Cork North Charitable Infirmary, and Cork Union Hospital.

On June 19th, 1883, at 1 p.m., I was summoned to see Mrs. D. in labour. This was her third pregnancy. The membranes had burst at 6 a.m. on the same day. Slight labour-pains commenced at 8 a.m. Strong expulsive pains set in at 10, lasting until my arrival. On each previous occasion, it was necessary to deliver her with the long forceps, in consequence of a narrowing of the conjugate diameter of the brim; and, when called on this occasion, I thought it was probably the same condition of things as before, namely, arrest of the head at the brim. However, on making an examination, I discovered that it was a face-presentation, and in the most unfavourable position—first mento-posterior. The presenting part had not yet entered the brim, although strong expulsive pains had lasted for the space of three hours. I decided, if possible, to change it into a vertex-presentation, as offering the best chance, in my opinion, both to mother and child.

The os uteri and soft parts were well dilated and cool. After passing the catheter, and emptying the rectum by enema, in the interval between the pains, I passed two fingers of my right hand over the vertex as far as they could reach, and applied the left hand externally over the hollow of the occiput as it lay in the left inguinal region. I felt I had complete control over the head, using gentle pressure externally with the left hand, aided by the two fingers of the right on the vertex internally. This served a double purpose; first, that of a tractor, and second as a director, preventing any contusion of soft parts. I was thus enabled to push down the vertex with very little difficulty into the right oblique diameter of the pelvis, thus changing the most unfavourable facial position into the most favourable cranial one.

I then left the case to nature, so that the head might mould itself into the cavity of the brim, and thus enable the woman to be safely delivered with the forceps, as, from previous knowledge of the case, I was satisfied that delivery would not be effected naturally. In two hours, the head fully occupied the brim; and, as a *caput succedaneum* was rapidly forming, I applied the forceps, and had the satisfaction of delivering a healthy living male child.

Remarks.—The treatment usually recommended in face-presentations in most of the modern works on obstetrics is to leave them to nature, although the mortality is stated by Playfair and others to be one in ten of the children when rotation takes place, and all lost when it does not take place. Why then leave such a case to nature if you see it before it enters the brim? Does it not, under the most favourable circumstances, involve a tedious labour and its consequences to the mother, and a certain risk to the child? I am certainly inclined to agree with Hodge, so far at least as mento-posterior positions are concerned, when he argues that they should be all changed into vertex-presentations, and for the valid reason of diminishing infantile mortality and sparing the mother the effects of a tedious labour. One of the most recent authorities states it is more difficult and painful to the mother to bring down the vertex than the head, and prefers podalic version.

The slight operation of substituting the vertex for the face above the brim, in my limited experience, bears no comparison to podalic version, for in the latter, as we are well aware, the maternal mortality is one in fourteen, that of children one in three. In the case related it would have indeed been difficult, and not unattended with danger, to perform podalic version, when the waters had escaped for seven hours, and when the uterus was contracting powerfully. On the other hand, the operation of bringing down the vertex was accomplished with the greatest ease, and with little or no pain to the mother. This, however, I think it right to state, was mainly due to the external pressure.

This plan is one which, I feel confident, will prove successful in the hands of any accoucheur of ordinary experience, in cases where the face is yet above the brim.—*British Medical Journal, May* 17, 1884, *p.* 948.

83.—USE OF THE OBSTETRIC FORCEPS IN THE ROTUNDA HOSPITAL, DUBLIN, IN 1883.

By Dr. A. V. Macan, Master of the Hospital.

The forceps most commonly in use during the year was Barnes'. For though always a believer in the theoretical advantages of an axis-traction forceps, I found Tarnier's instrument so large that it filled the vagina, and prevented any control being exerted by the fingers during extraction. Recently, however, I have frequently used Simpson's modification of Tarnier's forceps, and have found them most manageable and efficient. They are, however, a little too short, and the angle at which the traction bar is fastened on to the traction rods is very faulty. I therefore got over a pair of

Hegar's modification of Simpson's instrument, which I now exhibit to the Academy. They are longer than Simpson's, and the mechanism of the locking of the traction rods into the handle is improved. From a recent paper which Prof. Simpson has kindly sent me, I see that he has himself already introduced these improvements, so that his latest model is the same in all essential particulars as Hegar's. The position of the screw in the latter instrument on the right handle instead of the left is, however, a further improvement, as it cannot then fall down between the handles in the act of locking. Prof. Simpson recommends us to introduce the left or lower blade with the left hand, and quotes Pajot in support of this method. But Pajot's observations refer to the position on the back, which is the usual one on the Continent, under which condition the left blade must be introduced with the left hand, and *vice versa*. But they do not in the least apply to the ordinary obstetric position in this country—viz., on the left side, or else the lower blade of Barnes' forceps should also be introduced with the left hand, a plan which no one, as far as I am aware, has as yet recommended.—*Dublin Journal of Medical Science, June*, 1884, *p*. 491.

84.—ON UTERINE HÆMORRHAGE AND A NEW METHOD OF TREATMENT—IRON ALUM.

By the late Richard Richardson, L.R.C.P., Rhayader.

I shall not take up your time in considering the physiology and pathology of uterine hemorrhage, but shall devote attention more particularly to the treatment which has been most successful in my hands during a period of twenty years. I was anxious to find a reliable remedy which could be easily applied without any apparatus; these advantages I have found in iron alum when applied in crystals of the size of a hazelnut, or even larger in a severe case. It is to be introduced with the finger up to the os uteri (and not into it), and there allowed to remain. The uterus will at once contract, a firm coagulum is formed, and the hemorrhage at once ceases. Iron alum is also antiseptic; as I have removed clots on the fourth and fifth day after its application, which were quite free from any disagreeable odour. In a case of very severe hemorrhage, two or three days afterwards I inject a little warm water (to which may be added, if you like, a little Condy's fluid) and remove the clots. It is perfectly free from danger, and I have never known it to fail.

Case 1.—My first application of iron alum was in the case of a woman aged 43, troubled with metrorrhagia for about nine days, and recurring every two or three days; she was the mother of six children, the youngest of whom was four years old; the catamenia had appeared very regularly since she weaned her last. She was sure she had not aborted, as she was "poorly" a fortnight antecedent to the hemorrhage, which was the proper time for menstruation. On examination, I discovered a granular ulceration of the cervix; I treated her with quinine, digitalis, gallic acid, and sufficient dilute sulphuric acid to dissolve the ingredients. She was ordered to remain in the recumbent posture with cold cloths applied to the vulva. In three days the hemorrhage again came on. Two days subsequently to this I determined to try iron alum, and introduced a small crystal of the size of a pea; the bleeding ceased at once. On the following day I examined the patient, finding two or three clots in the vagina, which were perfectly dry, and which crumbled between the fingers on rubbing them; I injected warm water and examined the os, which was now nearly free from all granulations. Another piece of iron alum was applied, and there was no recurrence of the discharge. On the fourth day the granular ulceration had thoroughly healed, and the patient was cured; for some time she was very anæmic, and required iron tonics; but she soon recovered her strength, and has been well up to this time.

Case 2.—The next was a case of an abortion happening to Mrs. W., who had given birth to two children previously to this, the youngest being two years old; she was now advanced three months in pregnancy, and awaking one night found herself saturated with blood. She sent for me at once, and on arrival I found her in the following state. The napkins and sheets were completely soaked in blood; pulse 120; the lips were blanched; the cheeks pallid. The os uteri was very little dilated, and pains were coming on at long intervals. I applied a crystal of iron alum of the size of a nut to the os; the discharge stopped. Ergot and opium were administered every two hours. On the second day there was no pain, and no reappearance of the discharge. The patient slept well during the night; there was no internal hemorrhage; the os was not dilated; pulse 96; ergot was ordered to be continued every two hours. On the third day there was a good deal of bearing-down pain, but no hemorrhage; ergot was ordered every quarter of an hour. Two hours afterwards the ovum was expelled complete, and appeared like an old clot; there was no hemorrhage. The patient soon convalesced.

Case 3.—The next case was one of menorrhagia in a lady, aged 40, the mother of six children, the youngest being 4 years old. Her last two periods were excessive, lasting seven or eight days, with a slight mucous discharge for some days afterwards. I was sent for on the sixth day; she then had a copious discharge of blood. On examining her with the speculum, I found she had endocervicitis. I applied the iron alum with perfect success, and prescribed quinine and iron. During the next monthly period, she had the same treatment on the fourth day. From that time she quite recovered, and six months later was pregnant. She went to the full term, had a natural labour, and gave birth to a daughter. The patient recovered rapidly.

From that time to this, I have used the remedy in all cases of uterine hemorrhage where an immediate styptic was required; in accidental, unavoidable, and post partum, as well as in secondary hemorrhage.

In *post partum* hemorrhage, it is advisable always to clear the uterus of clots or any portion of placenta before applying the crystal; also, in accidental hemorrhage, when there is detachment of placenta, should the case appear to be one where there is no chance of carrying it to full term, the membranes ought to be punctured, and the iron alum applied in the usual way. There is no fear of any very great hemorrhage coming on afterwards; in a slight case, the iron alum will stop it; but, if the hemorrhage should recur, it would be advisable to have recourse to puncturing the membranes, and induce labour. By way of comparison, I shall here enumerate most of the local remedies hitherto used in uterine hemorrhage; namely, the tampon, compression, friction, galvanism, or electricity, ice, injection of hot and cold water, cold water applied to the vulva, cold douche on the abdomen, pressure on the abdominal aorta; and last, but not least, the injection of liquor ferri perchloridi. Most of these require an apparatus for their application, which may not always be at hand; and, in addition, some time would be taken in their preparation and administration. Furthermore, there is the always present danger of injecting a styptic into the open mouths of the uterine vessels; also cold applications, when the body is already too cold, must be injurious. Now, iron alum does not require any apparatus. or any preparation, as it is ready at hand; it will bring on immediate contraction of the uterus, which is the chief aim and object in the treatment of these cases; as remarked before, it does not require to be introduced into the uterus, only into the vagina, close to the os uteri, and there left.

The preparation is both cheap and effectual. I had some pessaries of it prepared by Messrs. Ferris and Co., which I found expensive, and no better than the crude crystal; I therefore discontinued them.

I find the crystals made with ammonia more permanent than those made with potash, and therefore more to be preferred. Since I began using the crystals I never go to a case of labour without them; I have also used the pieces (too small to be introduced) tied up in a piece of muslin, leaving the ends of the string hanging outside, so as to more readily remove the alum on the following day; this method answers quite as well. One of my former assistants, Mr. G. Tombs of Llanwrtyd Wells, wrote to me:—"I have very great faith in iron alum since I learnt its value from you. I have used it very extensively, and can testify to its efficacy in uterine hemorrhage. I have applied it in abortion, accidental and post partum hemorrhage, with the best result. In fact, in my experience I have not known it fail. I never go to a midwifery case without taking iron alum with me."

Another old assistant, Mr. J. W. Hinings, of Bromyard, says: "I have used the iron alum in three cases of milder post partum hemorrhage, too severe to be left alone, and have been satisfied with its operation."

My son, Mr. F. L. C. Richardson, says: "I use iron alum, when there is the least tendency to uterine hemorrhage in post partum cases, as a safeguard; but I found it invaluable in four extreme cases, as they were in a moribund state. I never undertake a midwifery case without bringing iron alum along with me, as a reliable companion to ergot and tincture of opium."

My friend, Dr. Talfourd Jones, of Brecon, writes to me as follows: "Since you first recommended to me, some years ago, the local use of iron alum in uterine hemorrhage, I have used it on several occasions in cases of threatened abortion accompanied by troublesome bleeding, and I have found the remedy extremely useful and valuable, very certain and rapid in its action. It is well to bear in mind that it is apt to occasion considerable soreness of the vagina, and in one instance it gave rise to vaginitis."

The soreness after the application referred to by Dr. Jones I have never yet met with. It is probable, if a person wished to make an examination very soon after its application. there would be great contraction of the parts; and in introducing the fingers some pain would undoubtedly be occasioned. It is better to wait until the following day to do so, having first of all sent up an injection of warm water to remove clots, etc.

I have also applied the remedy in four cases of uterine cancer, where the hemorrhage was very considerable and frequent. It controlled the bleeding entirely, and was re-applied on its recurrence. It also acted as a good antiseptic in these cases, and was the means of making the patients' lives more comfortable during the last six months of their sufferings. I have used it in several cases of leucorrhœa with great benefit. I wish my medical brethren to give it an unbiassed trial; and some, who are engaged in this speciality in large towns, would have ample means of doing so, as they would be likely to meet with more cases in twelve months than I would in ten years, owing to the difference in population.

Finally, I would supplement the treatment of hemorrhage by constitutional medicines, such as are generally recommended, namely, ergot, opium, digitalis, gallic acid, sulphuric acid, turpentine, acetate of lead, and transfusion and hypodermic injection of sulphuric ether in collapsed cases. Of these, the most reliable remedies are the first two and the last two.— *British Medical Journal, Sept.* 27, 1884, *p.* 605.

85.—ON THE PRECAUTIONS FOR THE PREVENTION OF PUERPERAL FEVER.

By Arthur V. Macan, M.B., Master of the Rotunda Hospital, Dublin.

In considering the precautions which should be taken for the prevention of puerperal fever, it is absolutely essential that we should keep quite separate in our minds the two great classes—auto-infection, where the poison is generated within the woman, and hetero-infection, where the poison is introduced from without. The latter class is, under ordinary circumstances, by far the more numerous and the more dangerous, and is generally, one might almost say always, due to inoculation with septic matter introduced by the hands of those examining, or by instruments used in operations. Our first efforts should therefore be directed to the thorough disinfection of every hand and instrument likely to come in contact with the genitals of a woman during pregnancy, labour, or the puerperal state. Whether the septic poison is ever conveyed by the air, is by no means certain; but, till it is proved that it is not, we should endeavour to disinfect it also. Even when the woman has escaped being infected during labour, she may subsequently be so by the introduction of septic poison by the nurse while washing her, or by contact with imperfectly washed bedclothes or napkins.

Hence, to a believer in the theory of Semmelweis, the first and most essential precaution necessary in a lying-in hospital is to refuse to allow students who are dissecting to examine lying-in women. Hereafter, when the nature of the septic poison and the proper and most powerful method of disinfection are more thoroughly understood, this may, and I trust will, become an unnecessary precaution. But with our present knowledge, and with the endless proofs that are at our disposal that puerperal fever has frequently had such an origin, I look upon it as little short of criminal to allow a student to walk from the dissecting room to the lying-in chamber. The first rule I made, after being appointed Master of the Rotunda, was, therefore, that no student who was dissecting would be allowed to attend the hospital. But further, in order to make it as easy as possible for students and nurses thoroughly to disinfect their hands before examining any case of labour, vessels containing a 1 in 40 solution of carbolic acid were placed over every wash-hand basin, and I personally instructed every student who entered the hospital as to the way I thought it necessary to wash the hands.

As soon as the child is born, the woman is made to lie slightly on the back to prevent the entrance of the air into the vagina or uterus, and there is an absolute rule against touching the woman's genitals with the fingers after delivery, except in cases of post partum hemorrhage, ruptured perinæum, or retained placenta, and then only by the Assistant Master. Before stitching up a ruptured perinæum, the vagina is injected with carbolic acid solution (1 in 40), and, should it be found necessary to introduce the hand, the uterus is always washed out with a similar solution. In like manner the vagina is irrigated and the external genitals are carefully washed before every operation, and the uterus is syringed out afterwards, and recently a pessary containing ʒ iss. of iodoform has then been passed to the fundus and left there.

To prevent the possibility of infection being carried by a vaginal or uterine tube, they are all made of glass, and a separate vaginal tube, such as I now exhibit, is provided for every bed in the hospital. These, when in use, are kept in carbolic acid solution, and are boiled in the same solution before being again used for another patient. To guard against the injection of air into the vagina or uterus, which, besides being in itself very dangerous, is a fertile source of fœtid lochia and consequent auto-infection, the old-india-rubber syphon syringes have been entirely replaced by irrigators, which act by gravity; and in order to render the air, if it should enter the vagina, as innocuous as possible, carbolic acid solution is constantly evaporated in the wards day and night.

Before I pass on to consider the measures taken to prevent auto-infection, I would like once more to emphasise the clinical distinctions between auto- and hetero-infection. In the latter case the labour has been most probably quite normal—the patient a fine, healthy primipara. The symptoms come on suddenly, within about thirty-six hours of delivery, and at the onset the discharge is not fœtid. In this case the poison has been inoculated into the blood in the same manner as the vaccine virus is in vaccination, and like it also has a very constant period of incubation. In cases of auto-infection, on the contrary, the woman is most frequently a multipara, the labour long, and perhaps complicated with a dead and putrid fœtus, or with fibrous tumour or cancer of the uterus, or there has been post partum hemorrhage from a badly-contracted uterus, followed by the formation of clots, or the retention of portions of the membranes or placenta. The uterus being badly contracted, and the abdominal walls very relaxed, air enters the vagina, and decomposition of the contents of the uterus is the result. If the fœtid discharge thus occasioned finds a free escape—if the drainage is, in other words, perfect, no absorption takes place into the system, and we have the well-known clinical phenomenon of a fœtid discharge without either a high pulse or fever. But if, as is more generally the case, the escape of the fluid is in any way obstructed, it becomes more and more fœtid from the delay, and, being absorbed into the system, causes fever—so-called autogenetic puerperal fever. This condition, called sapræmia, or putrid absorption, by Dr. Matthews Duncan, differs *in toto* from the heterogenetic puerperal fever, or that due to inoculation with septic matter. For, while the former corresponds to fever due to absorption from a badly-drained wound, which disappears as soon as the fœtid accumulation has been removed, the wound itself disinfected, and free drainage established, hetero-infection, on the other hand, more nearly resembles the effects of a snake-bite, subsequent death or recovery being determined by the amount and virulence of the poison primarily introduced through the wound into the system. Nor in this case can we hope for any benefit to result from the subsequent application of antiseptics to the wound, as the poison has already infected the whole system.

Since, then, auto-infection depends on the absorption of putrid matter from the interior of the uterus, there are two conditions essential before it can occur—first, a fœtid discharge, and, second, retention of this discharge within the uterus. Now, in order that the discharge should become fœtid, I think air must have been allowed to enter the uterus. Hence the prophylaxis of auto-infection consists, first of all, in preventing the entrance of air into the uterus; and, secondly, in removing quickly any fœtid accumulation that may have taken place within the uterus, disinfecting its cavity, and providing for free drainage. One point of great importance, in order to prevent the entrance of air into the uterus during the third stage of labour, is to make the woman lie somewhat on her back as soon as the child is born. If this be not done, and the pressure of the hand is removed for a moment from the fundus, the uterus falls downwards, a vacuum is formed, into which, if the sides of the vulva from any cause, such as ruptured perinæum, are not in close apposition, air rushes. There can be no doubt, I think, that for a similar reason the position on the back, or nearly on the back, should be maintained as much as possible for some days after delivery, and the proper application of the binder, as preventing a negative pressure in the abdomen, insisted on. The great laxity of the abdominal walls in multiparæ and the tendency there is to imperfect contraction of the uterus will, I think, account in great measure for the increased liability to putrid absorption which has long been noticed in women who have had many children; while the excessive mortality in first cases is readily explained by the danger of septic inoculation into the os during the long dilating stage, and into the ruptured perinæum during the third stage. Hence auto-infection is more common in pluriparæ, hetero-infection in first cases.

As a means of preventing an accumulation taking place within the uterus the position on the back is also of importance, as the intra-abdominal pressure is then greater than when the woman is on her side, and gravity acts more thoroughly. A distended bladder, which prevents the uterus contracting properly, should also be avoided—in fact, anything that is known to prevent uterine contraction should be removed. If the uterus be badly contracted ergot should be given, and should the discharge become fœtid *hot* antiseptic vaginal injections are indicated, which not only remove the discharge, but cause the uterus to contract. If the discharge be fœtid and the temperature not only becomes high, but remains so for twenty-four or thirty-six hours, then intra-uterine antiseptic injections should be made, and an iodoform pessary introduced. Also, in all cases where the child is dead, and there is the slightest smell, the uterus should be washed out with corrosive sublimate solution, and an iodoform pessary introduced. When there has been a fœtid discharge, accompanied by a high temperature, but without any symptoms of inflammation being present, the patient is encouraged to get up on the sixth day, as usual. The erect position, by aiding gravity, and putting increased pressure on the fundus, causes the drainage to be more perfect, and the result is, as a rule, that the temperature quickly sinks to normal.

Here I would like to draw your attention to the suitability of iodoform as a means of rendering, and keeping, the interior of the uterus aseptic, and thus preventing the possibility of putrid absorption. It has been extensively used for some time past in the Rotunda for this purpose, with the most gratifying results. It is introduced into the uterus in the form of a pessary, the amount of the drug in each being ʒ i. or ʒ iss. This decomposes very slowly, and exerts its antiseptic action for three or four days, at the least. I have also noticed that it has a powerful effect in lessening the temperature, quite apart from its antiseptic action. Thus there is a case in the Rotunda at the present moment in which we induced premature labour. It took three days, however, to bring on efficient pains, and some time before delivery the pulse was 130 and the temperature 103·6°. As soon as the child was born the uterus was washed out with corrosive sublimate (1 in 2,000) and ʒ iss. of iodoform introduced. The result was that the temperature on the following day had fallen to 96·4°, or over 7°. I have brought down some of the pessaries that we use, that the members of the Academy may see them.

As to the treatment of hetero-genetic infection I have very little to say, as I know of nothing that quickens the elimination of the poison from the system. If the continuous high temperature is beginning to show its effect on the nervous system the treatment should be antipyretic. For this purpose we give quinine in large single doses of from 10 to 20 grains, or the bath at 90° cooled down to 60°, both combined with large quantities of alcohol. I am happy to say, however, that I have only once been obliged to resort to the cold bath, and that was in a patient who was delivered before I took charge of the hospital. In future I shall not hesitate in these cases to try the antipyretic effect of a pessary of ʒ iss. of iodoform introduced into the uterus.—*Dublin Journal of Medical Science, June,* 1884, *p.* 481.

86.—ON PROLAPSE OF THE PELVIC FLOOR WITHOUT RELATIVE DISPLACEMENT OF THE UTERUS.

By G. ERNEST HERMAN, M.B.Lond., Obstetric Physician to the London Hospital, &c.

In the systematic description of the alterations in the mechanical relations of the pelvic viscera in women, the chief place is usually given to the flexions and versions of the uterus. Both those who think uterine flexions and versions in themselves important, and those who do not, agree in the observation that these so-called displacements, when met with in patients who seek for treatment, are generally accompanied with more or less prolapse, and admit also that prolapse of the pelvic viscera causes some amount of discomfort to the subject of it.

It is so obvious as not to need demonstration, that descent of the uterus cannot take place by itself. There must also be change in the parts which support the uterus, and in those with which it is connected. The uterus rests upon the structures which form the floor of the pelvis, and have been called, when regarded as a whole, the "pelvic diaphragm." No excuse is needed for clinically speaking of the pelvic floor as a whole, for we cannot during life dissect it, split it up into its component parts, and ascertain which is the one most effective in maintaining its proper mechanical relations. Prolapse of the uterus cannot take place without some alteration in the pelvic "diaphragm." But we may have yielding of the pelvic floor without any relative alteration in the position of the uterus; and this is what I wish to point out in the present communication. Cases of the kind, although they may be practically familiar to many, have as yet, so far as I can find, never been described in such a manner as that they can be clinically identified.

These patients come either saying that "the womb is coming down," or that "something is coming down," or complaining more vaguely of "bearing-down" pain. On digital examination, we find the uterus in its normal position—that is, in, or nearly in, the axis of the pelvic inlet. Its body cannot be felt through the anterior vaginal wall, nor through the posterior. It is neither retroflexed nor anteflexed. It is movable, and its cavity is of normal length. The vagina is not unusually relaxed, nor does its orifice appear unduly large. On inspection, when the patient is lying quietly on her side, we see the perinæum as usual, forming the bottom of a groove between the two convex eminences of the buttocks; ascending slightly during inspiration, and descending to an equal extent during expiration. If, now, the patient be told to strain, to bear down, as strongly as she can, we see the perinæum bulge downwards, forming, instead of the bottom of a groove, a third convex swelling between the two lateral ones of the buttocks. The position of the uterus during this effort is, relatively to the pelvic floor, unaltered. It descends, of course, with the pelvic floor, but neither uterus nor vagina undergo any other appreciable change in their relative position. The morbid condition present is simply abnormal yielding of the pelvic floor, without relative alteration of its parts.

I have measured, with a tape or bit of string, the distance, following the curve of the soft parts, from the coccyx or sacrum to the pubes. This measurement has been taken from the lower border of the symphysis either to the tip of the coccyx, or to the lowest sacral spine that could be conveniently felt under the skin. The tip of the coccyx can be felt through the skin much more easily in some subjects than in others, the differences depending on the degree of incurvation of the bone, and the fatness of the patient. Often it is difficult to feel it plainly enough to make it a point to be measured from, and when it lies deeply the pressure necessary to get at it causes pain, and tends to alter the amount of descent. For these reasons, when the tip of the coccyx could not be easily felt, I have measured from a higher, more superficial, and more clearly felt point. When this measurement had been made, the patient was told to bear down to the utmost of her power, and the distance between the same points, during the height of this effort, measured. As the object of the measurement is only to define the difference between the condition during rest and that during effort, it is immaterial whether the measurement be made from the tip of the coccyx or from a coccygeal or sacral spine, so that the two measurements are taken from the same point. In order to be sure that I was not mistaking a normal for a pathological condition, I have made the same measurements also in virgins, nulliparous women, and women not complaining of any symptoms referable to prolapse.

The measurements vary, as might be expected, in different women, according to the point of the sacrum or coccyx measured from; and if the same points were always chosen, the absolute measurements would still vary, according to the size of the pelvis and the degree of incurvation of the coccyx. An average measurement, taken in the manner described, would be about four inches. When the patient strains, the bulging downwards of the perinæum increases this, in the virgin, by seldom more than half an inch. But in the cases which it is the object of the present communication to describe, the distance may be increased by as much as two inches or more, showing an amount of stretching and yielding of the pelvic floor which does not occur when the parts are in a healthy state.

This condition is present in its greatest perfection immediately after labour, when the parts have been subject to recent and great stretching. If the process of puerperal involution, and repair of parturient injuries, go on properly, the parts regain their natural tonicity, and the effect of the stretching during labour is made good. I suspect, although I have not made special observations bearing on this point, that in any patient abnormal descent such as I have described will be found present for about three or four weeks after parturition. At this time it would merely indicate incompleteness of the process of puerperal involution and reparation; and would call for no further treatment than simply telling the patient not to undertake great or prolonged exertion too soon. It is only when it is observed in the nullipara, or at a time too remote from parturition for the condition to be justly regarded as a part of the natural puerperal state, that it can be considered morbid. It may be met with months, or even years, after childbearing. Uncomplicated cases of the kind are more frequently met with a few months only after parturition; for the reason, I believe, that such yielding of the pelvic floor, although at first simple, tends in time to become complicated with manifest prolapse of the vagina and uterus. It is met with also in nulliparæ, although not often. In them it is associated with relaxation of the muscular tone generally, and the symptoms it occasions will be found to vary with the general health, being absent when this is better than usual, present when the patient is depressed or tired. Such variations in the extent of the patient's complaints depend, I imagine, on the tone of the sensory, as well as of the muscular system, the patient being more susceptible to the influence of slight local unpleasant sensations when in feeble than when in vigorous health.

The symptoms are few and simple. The patient complains of aching, dragging sensations, felt, as a rule, in the back and lower abdomen and down the thighs. Like many other pains, it is often described as being worse on the left side, mainly for the reason, as I believe, that the left side is weaker in resisting painful impressions, as well as weaker in motor power, than the right. The patient will sometimes say that her "womb is coming down," or that "something is coming down;" and, if pressed to describe her pain, will say that it feels as if something were sinking from her. The essential feature of the pain is this, that it is entirely removed by lying down, For diagnosis, this is of cardinal importance. Pains of many kinds are lessened or removed by recumbency; and, therefore, if in a particular case this is so, the inference does not follow that the pain is due to yielding of the pelvic floor. But, if the pain be not removed by lying down, it cannot be entirely due to prolapse, and no form of mechanical treatment will be alone enough to cure it. This kind of pain is the chief and least variable symptom. It is made worse by exertion, and therefore by walking. It is also aggravated by the act of defecation, in consequence of the straining which accompanies that function. It is often associated with constipation—a condition which contributes to produce and maintain it. A costive habit implies large and hard scybala, which require much straining to expel them; and such straining means increase of pressure on the pelvic floor, which helps to weaken it. There is often, but by no means always, irritability of the bladder. The conditions which make the pelvic floor prone to yield—childbearing, debility, constipation—are those which also favour leucorrhœa. which is therefore often, but not always, present. The symptoms are usually increased at the menstrual period, in consequence of the congestion of the pelvic organs which attends the catamenial function; but, except for this slight aggravation of symptoms already present, menstruation is unaffected.

This assemblage of symptoms deserves notice and description, because it requires to be treated, and can be completely relieved by proper treatment. The treatment required is support to the perinæum. Vaginal pessaries are in these cases useless, because all that a vaginal pessary can do is to keep the vagina extended. It is in cases in which there is descent of the uterus, with inversion of the upper part of the vagina; cases in which, when we examine, we find that on straining, the uterus not merely descends with the pelvic floor, but approaches nearer the vaginal orifice and perinæum; or where there is commencing inversion of the lower part of the vagina, so that the wall of this canal protrudes at the vaginal orifice under expulsive effort, that vaginal pessaries, which keep the canal extended, and prevent changes in its form, may be serviceable. But in cases of the kind now under consideration, there is no such condition; when the patient strains, the uterus and vaginal walls preserve the same relation to one another and to the floor of the pelvis, that they had before; and when this is so, no vaginal pessary is required, nor will it do good. Support to the perinæum is all that is wanted. The most convenient, and most cleanly way of giving this support, is by an ordinary napkin, very tightly fastened.

These cases seem to me to have a special importance, beside their practical interest, because in them we have the phenomena of prolapse in their beginning, in their slightest and simplest form; and they are, therefore, cases which give us valuable teaching as to the symptoms which prolapse of the pelvic organs does and does not cause. The test, whether symptoms be due to mechanical alterations in the position of the pelvic organs, or not, is that, if they be, they should be immediately relieved by correcting the mechanical anomaly which is assumed to be their cause. In the cases here described, this can be done; and it will be found that, when it is done, the symptoms, which in the foregoing description have been attributed to the yielding of the pelvic floor, are at once and completely relieved. All sorts of other symptoms may coexist; but they are the result of other associated conditions, and will not be set aside by mechanical treatment.—*British Medical Journal, July* 12, 1884, *p.* 64.

87.—ON SO-CALLED OBSTRUCTIVE DYSMENORRHŒA.

By J.E. Burton, L.R.C.P., Surgeon to the Hospital for Women, Liverpool.

It is so well-known amongst gynæcologists that two distinct and opposite opinions still hold their ground as to the existence of a form of dysmenorrhœa due to obstruction from closure of the uterine canal, that I need do no more than make the briefest mention of them.

The founder of the obstruction-theory may be said to be Dr. Graily Hewitt, who worthily filled the office of President of the Obstetric Section at the Liverpool meeting last year. He says, in the last edition of his work on the Diseases of Women, "I hold the belief that dysmenorrhœa is to be regarded as a symptom, indicating, in almost every instance, an impediment to the escape of the menstrual fluid from the uterus." He then goes on to say that, before his views on flexion were widely known, the seat of this impediment or obstruction was generally supposed to be the external os, but that it can now be shown that the "obstructive cases" include very many instances where the internal os is the seat of obstruction. The stricture, he says, may virtually exist at the internal os, even although it may admit a tolerable sized sound, in consequence of flexion of the canal, the flexion acting as an obstacle to menstruation. "When the uterus is unduly soft, the sound may open out the flexion as it passes in." "The least bending of the uterus at the internal os will thus cause obstruction."

On the other hand, Dr. Matthews Duncan rejects the theory *in toto*, in reliance on the investigations of Dr. Herman. This gentleman made observations on one hundred and ten women. In forty-three cases, when the uterus was straight, twelve had much or bad pain. In fourteen cases of slight anteflexion, five had much or bad pain. In thirty cases of flexion at a right angle, nine were similarly affected; and in twenty-three cases of flexion at an acute angle, seven were affected. In the two first classes of patients, 29 per cent were affected, and, in the latter two, 30 per cent.

The same observer, if I mistake not, has also demonstrated, before one of the London medical societies, a series of preparations intended to prove that, as far as such dead material is concerned, no flexion of the canal can, under any possible circumstances, cause closure of it. Dr. Duncan, relying apparently on Dr. Herman's study of facts, has given his suffrages to the non-obstruction party. He alleges that the dysmenorrhœa is spasmodic. His mode of treating cases of dysmenorrhœa, however, leads to the suspicion that he may perhaps, after all, place some value on the obstruction theory, as it is exactly that which would be adopted by a firm believer in it. According to him, the most simple and effective treatment of spasmodic dysmenorrhœa is, to tunnel the os and cervix, by passing in graduated bougies.

After reading what both writers had to say, I was inclined to believe Dr. Hewitt, for the reason I have indicated; namely, that Dr. Duncan's plan of treatment would most likely prove effective, even if Dr. Hewitt's views were correct; and for the further reason, that anatomical preparations are not living structures, and that it is not always safe or conclusive to reason from them to the living.

As it appeared to me a matter of some importance from a practical point of view to ascertain what the actual facts were, I determined to inquire for myself; and the out-patient department of the Hospital for Women, Liverpool, afforded a suitable field for carrying out the inquiry. After some consideration, it seemed to me that the only way to ascertain the facts was to examine the cases with the sound at the time the actual paroxysmal spasm or pain was at its height. If closure of the canal at either os were present, causing retention of menstrual blood and distending the uterine cavity, or if spasm of the uterus or internal os existed without closure of the canal, it seemed to me that either condition ought to be readily detected by the sound. For several months, therefore, I directed all patients suffering from dysmenorrhœa to give me the opportunity of examining them during the height of the pain, either at my house, or at their own homes, or at the hospital. The result at which I arrived was totally different from what I expected. I quite expected to find obstruction of the canal from some cause, either from spasm of the internal os or flexion, but I found nothing of the kind. I had the opportunity of making observations on six women in all. The number is small, I admit, but the condition I met with was so uniform and so marked, that I do not hesitate to put forth my observations against any theories whatsoever. From various causes observation was difficult; some could not or would not let me know in time, and some had already had bougies passed before I could examine them. In all those I did examine, however, the condition was uniform. The spasm so often met with a day or two before the flow, and which renders the passage of the sound at this period difficult, or almost impossible, had entirely disappeared. So far from there being constriction or spasm at the external or internal os, there was actual dilatation at these parts, and the canal was actually more patent from one end to the other than at any other period of the month. It is really easier to pass the sound at this time, notwithstanding pre-existent flexion and spasm, than at any other period. Even in those cases of limp anteflexion so carefully and well described by Dr. Hewitt, the menstrual congestion affects the uterine structures, and the uterus is no longer flabby and doubled up; but it straightens and stiffens itself out by virtue of the congestion, and the canal becomes almost straight.

The question may now arise, Whence the pain, then, if there be neither obstruction nor spasm; and how do forcible dilatation and tunnelling cure the condition? Into this part of the subject there is not time to enter fully; but I should imagine that the congestion that is undoubtedly present is quite sufficient to account for pain, from pressure on the nerves. At any rate, it is not more difficult to account for the pain of dysmenorrhœa than for that of the various forms of neuralgia, hemicrania, or sciatica ; and we all know that nerve-stretching in other parts of the body than the uterus is not unfrequently successful in curing neuralgia when all other methods of treatment have failed.

One word in conclusion. If the observations I have made prove to be correct, if competent observers ascertain beyond a doubt that, generally speaking, dysmenorrhœa is due neither to spasm nor to any form of obstruction, but to general uterine congestion, it will follow, as a matter of course, that tunnelling or other forcible dilatation is an unnecessarily radical and severe method of cure. We may hope that a course of counter-irritation over the sacrum, by blisters or tincture of iodine, will reduce the congestion and prevent the recurrence of the pain. Other methods of relieving or preventing the pain will also suggest themselves, such as glycerine or alcohol-plugs, leeches, scarification, or injections of hot water. As a matter of fact, I have succeeded in curing the dysmenorrhœa in more than one case, without having had recourse to tunnelling, by means of tincture of iodine to the sacrum, combined with suitable general treatment; and, holding the views I do, I am convinced that, with a little patience on the part of both attendant and patient, the severe measures, and measures not absolutely free from risk, so freely recommended by almost all authorities, will be found unnecessary, or only requisite in extreme cases.—*British Medical Journal, Sept.* 27, 1884, *p.* 607.

88.—ON CASES OF PYOSALPINX.

By LAWSON TAIT, F.R.C.S., Surgeon to the Birmingham and Midland Hospital for Women.

It seems difficult to persuade some of the members of the profession that this disease is a very serious one, that it causes intolerable suffering, is very often fatal, that it is wholly incurable save by surgical operation, and that the operation for its cure has had in my hands absolutely no mortality at all. Up to the present moment I have operated on sixty-two cases of this kind, and not only has there been no death, but I know of only one case which has not been cured of all her suffering. Two of the patients are since dead, one of acute English cholora of twelve hours' duration, and one of self-imposed starvation due to acute melancholia. Six of the patients I have lost sight of, but of all the others I can give an account up to a very recent date.

The disease is not new, as it was fully described and figured many years before I was born. That it is a very fatal disease we have abundance of evidence on such good authorities as Bernutz and Wilks, and the literature of peritonitis affords numerous instances of death due to general inflammation of the abdominal cavity arising from a ruptured Fallopian cyst.

The great majority of the cases which have come under my care for this disease belong to the very numerous class of suffering women who wander about from one consulting-room to another seeking relief and finding none, except in laparotomy.

One of the most constant features of menstruation when the tubes are diseased is that it is excessive, often amounting to severe menorrhagia, and this I regard as a strong argument in favour of my views. The pain of menstruation in most cases is excessive, often agonising, and it begins always before the appearance of the flow—this feature being of great assistance in the diagnosis. The pain excited by intercourse is generally so great as to lead to the entire discontinuance of the marital act.

The patients are always sterile, and the history of the illness can generally be traced to an attack of pelvic inflammation occurring after a labour or a miscarriage, or often after the suspicion of a gonorrhœa. In a few cases I have failed to get any such history.

I select the three following cases chiefly because they illustrate the frequent result of the disease in general suppurative peritonitis, which would doubtless have proved fatal but for surgical interference; and this fact I could emphasise by many other instances. They also illustrate three of the classes of different origin, and the first in particular gives me an opportunity of speaking on a matter concerning which my experience is every year strengthening my convictions, I mean the mischievous effects of the indiscriminate use of pessaries.

Case 1.—In the narration of this case I am absolutely obliged to suppress all dates, names, and localities, to secure that there shall be no identification of the case. The reason of this will soon become evident, but I have placed in the hands of the President all these facts, together with the surgical record of the case, in order that there may be no room for a captious critic inclined to dispute my statements.

Some months ago I was visited by a practitioner very well known for his attachment to the gynæcological department of medical practice and for his skill therein. He was in great distress concerning a patient in whose uterus he had placed a stem pessary. She had been married for many years and had had no children. Her menstruation during that time had been profuse, more frequent than normal, and always accompanied by pain so severe as to keep her in bed for several days. She had been under the care of many medical advisers special and general, and had been treated for ulceration of the womb and other local conditions of more or less fanciful nomenclature. The only result was that she got gradually worse. My friend's written description of her pelvis when he first saw her was:—

"With the exception of some tenderness in the hypogastrium, external examination only gave negative results. Vaginal examination revealed the uterus lower in the pelvis than normal and retroflexed, the fundus directed rather to the left The abnormal position of the uterus was easily rectified by the gentle introduction of the sound through a channel freely patent, the uterus being thus proved to be movable and the cavity of normal length. To the right there was a sense of resistance and some tenderness. Her sufferings were relieved by the administration of morphia, hot vaginal injection, and opiate stupes. A few days after the cessation of the catamenia the pain and tenderness diminished, and I (the doctor whose case it was) introduced a Wynn-Williams pessary with intra-uterine stem to rectify the malposition, this being done with antiseptic precautions. Eight days afterwards I saw her and found that for the previous two days she had pain recurring at frequent intervals, that her pulse was 100 and her temperature 100°. I sent her to bed and removed the pessary. For some days the temperature and pulse became normal, though the pain and tenderness did not wholly disappear. To the right of the uterus I found a decided fulness, giving the sense of being fluid, and I decided to introduce an aspirator needle. But early next morning (before aspiration was performed) I was hurriedly summoned to her; I found her condition much altered, the pain having increased and become general over the abdomen. There was frequent violent retching and retraction of the knees towards the abdomen. The features were sharp and pallid, the eye-balls shrunken and glassy, the pulse small and rapid, and the temperature 105°. I saw that no time was to be lost if her life was to be saved, and I was fortunate in obtaining your immediate attendance, with the result that she rapidly rallied from her alarming and collapsed state, pain and retching instantly ceased, and the temperature gradually subsided, becoming normal late in the evening."

The gist of what is given above, save the last sentence, was communicated to me in my consulting room on the morning of the access of the alarming symptoms, and I had no difficulty in deciding, and I communicated my views there and then to my friend, that his patient had been suffering for years from chronic pyosalpinx, that the pessary had started it into an acute form, that the tube had burst, that she was now suffering from general peritonitis, and that the only hope of saving her was in abdominal section. He accepted my recommendation, and we started off by train as soon as my preparations could be made. I found the patient just as he described with abdominal distension and evidence of fluid in the peritoneum. I opened the abdomen and gave exit to a large quantity of fœtid, flocculent, purulent fluid. I found the right tube densely adherent, that it had been distended with fluid and had burst. I removed it along with the ovary, and the right ovary being adherent in the *cul-de-sac*, I removed it as well. I cleaned and washed out the abdomen as well as I could and inserted a drainage tube. Her recovery was somewhat tedious but it is complete. I do not think I can comment upon this case better than by quoting the words with which my friend closes his account to me of this interesting and most instructive case. "In reviewing this case, I cannot but attribute to the mechanical treatment the consequences which followed it, though this is the first time after a prolonged employment of uterine stems that I have had such a mishap. It has, however, taught me a lesson, inasmuch as it shows me how difficult it is sometimes to discriminate the cases where they can be safely employed, and also the dangerous results to which they are capable of giving rise sometimes." I can only endorse these words. I have at least one bitter lesson in my own practice as to the mischief done by intra-uterine stems, and the more I see of them the more I distrust them and the less frequently I do employ them.

[Mr. Tait relates other two cases, and then continues:]

In these three cases we have illustrations of three methods by which this serious disease may arise; (a) the use of pessaries, (b) some chill or catarrhal affection; (c) gonorrhœa. The fourth cause known to me is puerperal peritonitis.

Of all the causes I think gonorrhœa is by far the most common, and the next most common is puerperal inflammation. In some instances I am sure pessaries have been the initial cause, and in all cases they aggravate the condition. The most rare cases are those where the cause seems to be entirely catarrhal, or where no point of causation can be determined.

The radical cure of this disease, indeed, relief of any kind for it, can be secured only by surgical operation. There is hardly a specialist of any note in this country, who has not had under his care some one or more of the cases on my list. The mortality of the radical cure must be very small as I have now operated sixty-five times without a death. My second remark is to the effect that these cases exist in large numbers, that they wander about seeking relief and find it in one way only.—*Obstetrical Transactions*, 1884, *p.* 234.

89.—ON PERITONITIS OF PELVIC ORIGIN.

By W. T. Gairdner, M.D., LL.D., Professor of Medicine in the University of Glasgow.

The first step towards a diagnosis in a case having the conventional symptoms of peritonitis, is to keep it steadily in view that true peritonitis, and especially acute peritonitis, is rarely, if ever, "idiopathic," as it is called; that is to say, it is not a disease standing by itself, implicating only the peritoneum, and without relation to any other organic disease as its cause; but rather one which derives almost all its clinical significance from the inquiry into its cause; one which is to be treated and managed, as well as judged of with respect to its prognosis, according to its cause in most instances, if only you can succeed in making out the true sequence of events. This was most strikingly illustrated by a case which occurred to us nearly eight years ago, when Dr. Frank Shearer, now of Paisley, was my resident assistant, and preserved a careful and detailed note of the facts. The symptoms were of the most acute and deadly kind of peritonitis, as described in the text-books; there was hardly a doubt, from the first, that the poor young girl was dying, and she died in fact in less than twenty hours after her admission, the temperature rising steadily till it was nearly 105° F. in the axilla, and 106° in the rectum at the time of her death; and with this peculiarity (which you will find very characteristic of such cases) that while the thermometric notes showed this steady rise, "the face was covered with a livid flush, and her hands became gradually colder and her nails more livid, till at the time when the thermometer in the axilla registered 104·7°, her hands were of an icy coldness." These facts will probably recur to you, if you take note of them now, when you meet with another case like that of M. T.; but that may very well not be soon, for such extreme cases are rather rare. My object, however, in referring to this case, is not to comment in detail upon the symptoms, but to tell you about the *post-mortem* examination. I was entirely "at sea" as to the cause of the peritonitis in this case; for the opportunity of observing it in detail was wanting; the girl was dying, and all we could do in the way of treatment was to relieve her agony a little by fomentations of the abdomen, and by opium. But we had ascertained that she had not the history of a perforated bowel or stomach, not of typhoid fever for instance, nor of a long-standing dyspepsia, nor of chronic disease of the intestines; only of an illness reported somewhat similar to the one for which she was admitted, but much milder, about a year previously, which, it was said, had only lasted for a week. The typical symptoms and physical signs of peritonitis were all present, but there was nothing to reveal its source unless we had made a pelvic examination, and this I can hardly take blame to myself for not doing in this obviously dying girl. But in making the post-mortem examination, I said by anticipation, that going merly on the known fact that acute, and especially fatal, peritonitis is so rarely *idiopathic*, we might expect to find a cause, and might possibly find it in the pelvis; and in the pelvis accordingly it was discovered; the left ovary being the seat of an abscess, which had enlarged it to the size of a hen's egg; this abscess, communicating by three perforations completely covered up by adhesions, with Douglas's space. Strange to say, although the peritonitis was quite diffuse and general, causing recent matting together of the intestines all over the abdomen, there was no direct communication to be discovered between the ovarian abscess and the general cavity. The ovarian disease had been in the first instance completely enclosed by local adhesions, some of them perhaps corresponding with the attack a year before death; and at a much later period some change, not more distinctly definable, had converted the local into a general and diffuse peritonitis.

Now this case, I think, contains a great lesson for all of us. For although we could do almost nothing for this girl, seeing her as we did *in extremis*, and within twenty hours of her death, it is abundantly plain that at an earlier period something might have been done, by vaginal incision and drainage, to deal with the local abscess, and avert the fatal and diffuse form of peritonitis. But had the case been less desperate when admitted, it is equally plain that the one chance of treating it properly would have been missed had the diagnosis been allowed to rest at the point of declaring it to be simply an acute peritonitis, and omitting a vaginal examination.

The moral, from the practical and clinical point of view, that I wish you to draw from this case, although you did not see it for yourselves, is—never be satisfied, in any case, with a diagnosis of peritonitis *only*, whether acute or chronic. Seek always, and everywhere, for a local cause in some organs or system of organs; and seek with persistence and thoroughness by examining the history, the symptoms, the physical diagnosis in its largest and most comprehensive sense. You may possibly fail, not because there is no local cause, but in some instances, at least, because you have not been able to discover one. But if you fail, when all is done, you will have done your best; and if you succeed, you will have got the key to your case, and with it, perhaps, a most important and necessary guide to the prognosis and the treatment.—*Medical Times and Gazette, July* 5, 1884, *p.* 3.

90.—ON EARLY AND LATE REMOVAL OF ABDOMINAL TUMOURS.

By Sir T. SPENCER WELLS, Bt., late President of the Royal College of Surgeons of England.

Twenty or twenty-five years ago, when the removal of any abdominal tumour was very seldom attempted—when ovariotomy was on its trial—when uterine tumours were generally considered as beyond the art of the surgeon—early operation was the rare exception to the general rule only to act when the necessity for attempting to save life from great or immediate danger was so evident that failure could lead neither to surprise nor blame. The operation might not succeed in saving life; but it scarcely shortened it, and the patient only lost a few days or weeks of a suffering life. Then as ovariotomy rose to the position of lithotomy among surgical operations—when it became known that from a mortality of 70 or 80 per cent. the recoveries soon equalled the deaths, and then advanced rapidly with increasing knowledge year after year, until almost all the favourable cases recovered, and almost every death was in a case recognised, before operation, as more than doubtful, it became needful to utter a word of warning against indiscriminate or thoughtless proceedings. Afterwards, when the strictest hygienic precautions were supplemented by antiseptics, and improvements in operative detail were generally adopted, success became so great that ovariotomy not only took its stand as by very far the most successful of any capital operation in surgery, but the risk attending it in a favourable case could truly be calculated as little, if at all, greater than that necessarily attending any case of natural childbirth; and, as a necessary consequence, early operations could be advised with less hesitation.

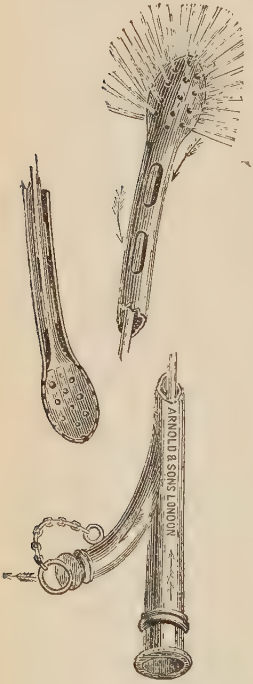
Then, as ovariotomy led to the removal of uterine tumours, and the terms hysterotomy, hysterectomy, myomotomy, and fibro-myomotomy crept into surgical literature, much the same change in professional opinion and practice has been going on. At first, it was only after an error in diagnosis, not discovered until the operation had been begun or completed, that a large solid uterine tumour was removed. Knowledge so acquired, and success thus occasionally obtained, led to more accurate diagnosis, and more frequent operations; and, just as in ovariotomy, to improvements in all the details of practice, and to a rate of mortality which has diminished rapidly, success having been attained under such unfavourable conditions as a few years ago would have justified any surgeon in refusing to comply with the earnest prayer for relief from an almost dying woman. Again it became needful to sound a note of warning, and to suggest that the analogy between ovariotomy and hysterectomy must not be carried too far—that in many respects the two operations, especially as to the time when they should be performed, stand upon very different ground. A considerable proportion of ovarian tumours, sufficiently large to cause suffering or some inconvenience to a patient, or to lead her to seek for medical advice, sooner or later absolutely demand operative treatment. An equally large proportion of uterine tumours do not require any treatment, cause very little suffering or inconvenience, and disappear partially or entirely not very long after the cessation of menstruation. It is only in exceptional cases that hemorrhage, or unusual effects of pressure from tumours of moderate size, or excessive growth of the tumour, lead to a consultation as to the removal of a uterine tumour. In cases of ovarian tumour, removal is the rule of treatment. With uterine tumours it is the exception, not so rare as it used to be, but still the exception; and in cases where excessive periodical loss of blood is the reason for operation, the alternative proposal has to be taken into account of removing both ovaries and cutting off the supply of blood instead of removing the uterine tumour. No such alternative proceeding can be considered in a question of ovariotomy; unless drainage in cases where it is impossible to completely remove an ovarian cyst can be considered as analogous.

Many writers on this question of early or late operation seem to be remarkably forgetful of the fact that the surgeon cannot do exactly as he pleases with his patients. In many cases where he would have liked to operate early, he does not see the case until the tumour is very large and the patient in extreme suffering. In others his advice must be modified by the circumstances of the patient. She may be a poor woman who must earn her living, or a rich one who can obtain every appliance that can afford relief; and although many patients are ready to act as they are advised and willingly submit to what is thought to be best in their own case, many others cannot or will not shake off their hopes and fears, their affections or their interests, and the surgeon, while giving information or advice, must leave the decision to the patient or her relatives. There are patients upon whom it is quite right to operate much earlier than the necessity of the case demands. A marriage has been arranged and cannot be indefinitely postponed; or a married woman wishes to accompany her husband to India, Australia, or elsewhere, or to join him there, and as an invalid can do neither; or a sensitive girl is distressed by remarks on her appearance. On the other hand, there are patients who determine, in spite of urgent advice, to defer operation as long as possible. A widow whose children are entirely dependent upon her annuity—a wife devoted to the care of a sick husband or child, must think of others more than of herself, and every surgeon of much experience has met with both classes of cases. He is not playing with chess-men. He is dealing with intelligent human beings, who are influenced by their emotions and passions, and are very seldom free agents; and he can do little more than say what, to the best of his knowledge and belief, will be the probable course and duration of a tumour if left alone, what is the amount of risk probably attendant upon its removal, and what security can be reasonably offered that recovery from the operation means a complete cure—in other words, that there will be no return of the disease.

Here again the contrast between uterine and ovarian tumours is remarkable. A woman who recovers, in any form of non-malignant disease, after ovariotomy is restored to complete health. If one ovary only is removed she may bear children of both sexes. The probability of disease occurring on the other side is not more than 1 in 100. If both ovaries are removed, this small drawback is removed; but young women become sterile.

All this has been completely established, but we are still imperfectly supplied with facts as to the subsequent conditions of women after removal of large portions of the uterus, with or without removal at the same time of one or both ovaries. I know of several when after some years the health has remained surprisingly good. The details of such cases may be found in my last work on ovarian and uterine tumours. I have seen other cases where it has been impossible to remove the whole disease. Subserous myomata have been removed, while mural growths have been left, and the patient may have been relieved, but not cured. In the present day such a case would probably be subjected to removal of both ovaries as well as to myomotomy. But before any general rule of practice can be laid down, or any really accurate information or trustworthy advice can be given to a patient who has a uterine tumour, we must have as full and as precise histories of long series of cases as we have obtained with regard to ovarian tumours and ovariotomy. We shall probably have, at the Copenhagen Congress, from Professor Olshausen, of Halle, very important additions to our knowledge in this direction, and we have still to learn much as to the effect upon uterine growths and out-growths of removal of the ovaries. Vague unsupported assertions have little influence upon the opinion of a thoughtful or sceptical profession. And just now something more than a word of caution against rash, dangerous, unnecessary operations is called for. We are startled by reports of the removal of the normal ovaries of young women suffering from nervous disorders which may be exaggerated or imaginary; and it is to be feared that our professional honour is at stake; that statements are publicly made which, when challenged, cannot be substantiated; and that abdominal surgery in its latest developments is open to the denunciation hurled against the earlier ovariotomists; and that, with more reason than in 1850, Lawrence's question must be repeated, whether such operations "can be encouraged and coninued without danger to the character of the profession," and West's assertion that "a fundamental principle of medical morality is outraged," cannot now be satisfactorily refuted.—*Medical Times and Gazette*, *July* 5, 1884, *p.* 1.

91.—DR. OSTLERE'S UTERINE DOUCHE.



Dr. R. Ostlere, of Stoke Newington, sends us the following:—

Messrs. Arnold, of West Smithfield, made the uterine douche for me some four years ago, and having used it constantly and found the great convenience of it in cases requiring "washing out," I am induced to bring it under the notice of the profession with the accompanying illustration. It consists of a double silver tube, the arrangement of which is shown in the illustration. It is used with an ordinary Higginson's enema syringe. Its advantages are:—

1. The ease and safety with which it can be introduced.
2. The outlet tube, which prevents all risk of injecting the Fallopian tubes, and also the discomfort of the return fluid soaking the bedding.
3. The arrangement of the inner tube is such that it can be removed easily, and the whole instrument easily cleansed.

Med. Press and Circular, *Oct.* 3, 1883, p. 301.

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PRINTED FOR D. I. ROEBUCK,
AT THE OFFICE OF THE YORKSHIRE POST, ALBION STREET, LEEDS.